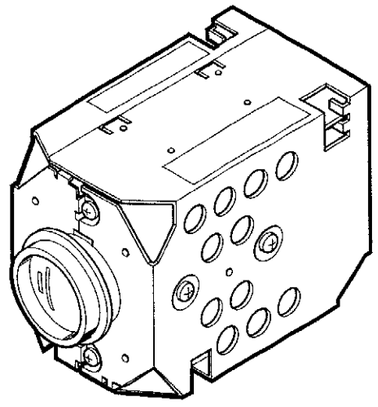
HITACHI

SERVICE MANUAL

TK | No.8802E

VK-S914/S914E
VK-K914/K914E



SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

COLOR & B/W VIDEO CAMERA

June 1998 Image & Information Media Systems Division, Tokai

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts have special safety-related characteristics. These are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for a higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual. Electrical components having such features are identified by marking with a ⚠ on the schematics and the parts list in this Service Manual. The use of a substitute replacement component which does not have the same safety characteristics as the HITACHI recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards. Product safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current HITACHI Service Manual. A subscription to, or additional copies for, HITACHI Service Manual may be obtained at a nominal charge from HITACHI SALES CORPORATION.

How to discriminate the "TYPE" identifications in the manual

The parts and circuits are identified by "TYPE" in this manual to discriminate the differences between models. The TYPE numbers are the same as the model numbers. The table below shows how to read the type identifications.

TYPE identification	Model name
TYPE S914	VK-S914
TYPE S914E	VK-S914E
TYPE K914	VK-K914
TYPE K914E	VK-K914E

C O N T E N T S

CHAPTER 1 GENERAL INFORMATION

SPECIFICATIONS 1-1
JIGS AND TAPES FOR ADJUSTMENT 1-1
COMPARISON OF FEATURES 1-2
COMPARISON OF MAIN CONTROL ICs 1-2

CHAPTER 2 DISASSEMBLY

1. DISASSEMBLY PROCEDURE 2-1

CHAPTER 3 ELECTRIC CIRCUIT ADJUSTMENT

1. CIRCUIT BOARD LACATIONS 3-1
2. TEST EQUIPMENT NECESSARY FOR ADJUSTMENT 3-1
3. LIST OF CHARTS FOR ADJUSTMENT 3-1
4. ADJUSTMENT CONDITION 3-1
5. CONNECTION FOR ADJUSTMENT 3-1
6. CHECK AFTER REPLACING MAJOR COMPONENTS 3-3
7. ADJUSTMENT PROCEDURE 3-4
8. ERROR MESSAGE 3-12

CHAPTER 4 EXPLODED VIEWS

EXPLODED VIEW 4-1

CHAPTER 5 REPLACEMENT PARTS LIST

1. MECHANICAL PARTS LIST 5-1
2. ELECTRICAL PARTS LIST 5-1

CHAPTER 6 SCHEMATIC AND CIRCUIT BOARD AND BLOCK DIAGRAMS/ MICROPROCESSOR PIN FUNCTION TABLE

INTERNAL WIRING DIAGRAM 6-1

	SCHEMATIC	/	*CIRCUIT BOARD*
SENSOR [SP]	6-2	/	6-16
AUTOFOCUS [PC]	6-4	/	6-14
PROCESS [PC]	6-8	/	6-14
SWITCHING REGULATOR [CSR]	6-10	/	6-17

IDENTIFICATION OF PARTS LOCATION 6-12
WAVEFORMS 6-11
BLOCK DIAGRAMS 6-18
MICROPROCESSOR PIN FUNCTION TABLE 6-20

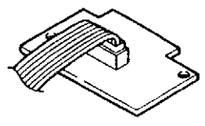
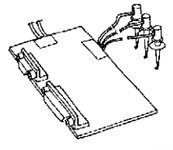
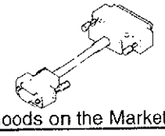
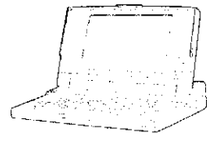
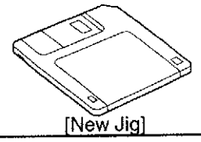
CHAPTER 1 GENERAL INFORMATION

SPECIFICATIONS

Note: The specifications are subject to change for improvement without notice.

Signal:	VK-S914:	NTSC Format
	VK-K914:	EIA Format
	VK-S914E:	PAL Format
	VK-K914E:	CCIR Format
Scanning System:	2:1 Interlaced	
Image Sensor:	1/4" CCD Image Sensor	
Number of Effective Pixels:	VK-S914/K914:	768(H) × 494(V)
	VK-S914E/K914E:	752(H) × 582(V)
Total Number of Pixels:	VK-S914/K914:	811(H) × 508(V)
	VK-S914E/K914E:	795(H) × 596(V)
Scanning Frequency:	VK-S914/K914:	Horizontal 15.734kHz / Vertical 59.94Hz
	VK-S914E/K914E:	Horizontal 15.625kHz / Vertical 50Hz
Video Signal Output:	VK-S914/S914E:	Composite Signal 1.0Vp-p
	VK-K914/K914E:	Y (Luminance) Signal 1.0Vp-p
Minimum Required Illumination:	VK-S914/S914E:	3 lx (Wide Angle)
	VK-K914/K914E:	0.1 lx (Wide Angle)
S/N Ratio:	46 dB or more	
Horizontal Resolution:	VK-S914/S914E:	450 TV Line or more
	VK-K914/K914E:	500 TV Line or more
Permissible Operating Temperature:	0 - 60 °C	
Permissible Operating Humidity:	10 - 85 %	
Power Input:	DC 9 V	
Power Consumption:	3.2 W or less	
Dimensions:	50(W) × 60(H) × 86(D) mm	
Weight:	Approx. 235 g	

JIGS FOR ADJUSTMENT

1. DSP Interface Connect Jig No. 7069179 	2. DSP-R Jig No. 7099448 	3. Personal Computer Cable 9-PIN or 25-PIN (RS232C Straight type)  [Goods on the Market]	4. Personal Computer  [Goods on the Market]
5. Adjustment Floppy Disk (3.5inch) No. 7069205  [New Jig]			

COMPARISON OF FEATURES

ITEM	VK-S714/K714/S714E/K714E	VK-S914/K914/S914E/K914E
Signal Format	VK-S714: NTSC VK-K714: EIA VK-S714E: PAL VK-K714E: CCIR	VK-S914: NTSC VK-K914: EIA VK-S914E: PAL VK-K914E: CCIR
Power Requirements	DC 9V	
Power Consumption	2.5W (MAX)	3.2W (MAX)
Dimensions (W × H × D mm)	50 × 60 × 85	50 × 60 × 86
Weight	Approx. 220 g	Approx. 235g
Permissible Operating Temperature/Humidity	0°C to 40°C 10% to 85%	0°C to 60°C (Recommendation: 0°C to 40°C) 10% to 85%
Image Sensor	VK-S714/S714E: Color 1/4" CCD VK-K714/K714E: B/W 1/4" CCD	VK-S914/S914E: Color 1/4" CCD VK-K914/K914E: B/W 1/4" CCD
Number of Effective Pixels	VK-S714/K714: 768 (H) × 494 (V) VK-S714E/K714E: 752 (H) × 582 (V)	VK-S914/K914: 768 (H) × 494 (V) VK-S914E/K914E: 752 (H) × 582 (V)
Total Number of Pixels	VK-S714/K714: 811 (H) × 508 (V) VK-S714E/K714E: 795 (H) × 596 (V)	VK-S914/K914: 811 (H) × 508 (V) VK-S914E/K914E: 795 (H) × 596 (V)
Scanning System	2:1 Interlaced	
Horizontal Scanning Frequency	VK-S714/K714: 15.734 kHz VK-S714E/K714E: 15.625 kHz	VK-S914/K914: 15.734 kHz VK-S914E/K914E: 15.625kHz
Vertical Scanning Frequency	VK-S714/K714: 59.94 Hz VK-S714E/K714E: 50 Hz	VK-S914/K914: 59.94 Hz VK-S914E/K914E: 50Hz
Sync Format	Internal/External	
Video Signal Output	VK-S714/S714E: Composite Signal 1.0Vp-p VK-K714/K714E: Y (Luminance) Signal 1.0Vp-p	VK-S914/S914E: Composite Signal 1.0Vp-p VK-K914/K914E: Y (Luminance) Signal 1.0Vp-p
S/N Ratio	46 dB or more	
Horizontal Resolution	VK-S714/S714E: 450 TV Line or more VK-K714/K714E: 500 TV Line or more	VK-S914/S914E: 450 TV Line or more VK-K914/K914E: 500 TV Line or more
Minimum Required Illumination	VK-S714/S714E: 10 lx VK-K714/K714E: 1 lx	VK-S914/S914E: 3 lx VK-K914/K914E: 0.1 lx

COMPARISON OF MAIN CONTROL ICs

ITEM	VK-S714/K714/S714E/K714E	VK-S914/K914/S914E/K914E
CCD Image Sensor	VK-S714: ICX068AK (IC1001) VK-S714E: ICX069AX (IC1001) VK-K714: ICX068AL (IC1001) VK-K714E: ICX069AL (IC1001)	VK-S914: ICX208AK(IC1001) VK-S914E: ICX209AK(IC1001) VK-K914: ICX208AL(IC1001) VK-K914E: ICX209AL(IC1001)
CDS AGC	HA118184F (IC1101)	HD49322BF (IC1102)
A/D CONV.	HD49319A (IC1102)	
Digital Process (DSP)	HG51CS035TEA (IC1103)	HG73C012TE (IC1103)
Drive Pulse Gen.	µPD16510GR (IC1104)	
Digital µP	HD6433042T19F (IC1106)	HD6433042ST37F (IC1106)
EEP-ROM	S-29394AFJA (IC1107)	
Reset Pulse Gen.	RN5VT28AA (IC1108)	
Level Shift	HD74HCT125T (IC1109)	
OSC [For Color Model]	TC7SU04F (IC1112)	
Inverter	TC7SU04F (IC1113)	
FV Pulse Gen.	IDC-7S08 (IC1114)	
VCO	74HC00 (IC1115)	
Inverter	TC7SU04F (IC1116)	
F.DET./Iris Drive	µPC5023GS-105 (IC1201)	µPC5023GS-147GJG (IC1201)
Zoom Motor Drive	MPC17AT85VM (IC1301)	
Focus Motor Drive	MPC17AT85VM (IC1302)	
Camera PWM	BA9706K (IC1501)	TL1464IPT (IC1501)
C5V Switch	MPL1 (IC1502)	MPL1 (Q1501)
C3V Switch	MPL1 (IC1503)	MPL1 (Q1502)
C2V Switch	Not Provided	MPL1 (Q1503)
Video Amp	MM1029AT (IC1551)	MM1029AT (IC1117)
Phase DET.	TC5081AP (IC1581)	Not provided

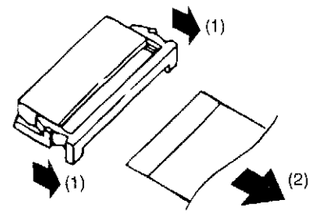
CHAPTER 2 DISASSEMBLY

1. DISASSEMBLY PROCEDURE

The numbers in the followinng tables correspond to those in Fig. 2-2.
Remove each component shown in the following tables according to the order of the numbers.

Item: Removal Procedure and Number of Component to be removed	CASE-R	CASE -L	CSR Circuit Board	PC Circuit Board	SP Circuit Board & CCD Sensor	Lens Block	How to remove
	(1)	(1)	(1)	(1)	(1)	(1)	(1) Remove 2 screws.
	(2)	(2)	(2)	(2)	(2)	(2)	(2) Remove 2 screws.
		(3)	(3)	(3)	(3)	(3)	(3) Remove 2 screws.
			(4)		(4)	(4)	(4) Remove 2 screws.
			(5)		(5)	(5)	(5) Remove the CSR circuit board.
					(6)	(6)	(6) Remove 1 screw.
					(7)	(7)	(7) Disconnect the flat cable. (Note 1)
					(8)		(8) Remove the PC circuit board.
					(9)	(9)	(9) Remove 2 screws.
					(10)		(10) Remove 2 screws.
					(11)		(11) Unsolder 14 points. (Note 2)
						(12)	(12) Remove 3 screws.

Notes: 1. Do not the pull out the flat cable or touch the exposed terminal at the connecting position with your bare hands as it could cause a defective (1) and (2) shown in Fig. 2-1.
2. When the SP circuit board is removed, the crystal filter (or dummy grass) and rubber are also removed. Be careful not to damege and lose them.



(1) Release the lock of the connector on the left and right.
(2) Pull out the flat cable

Fig. 2-1

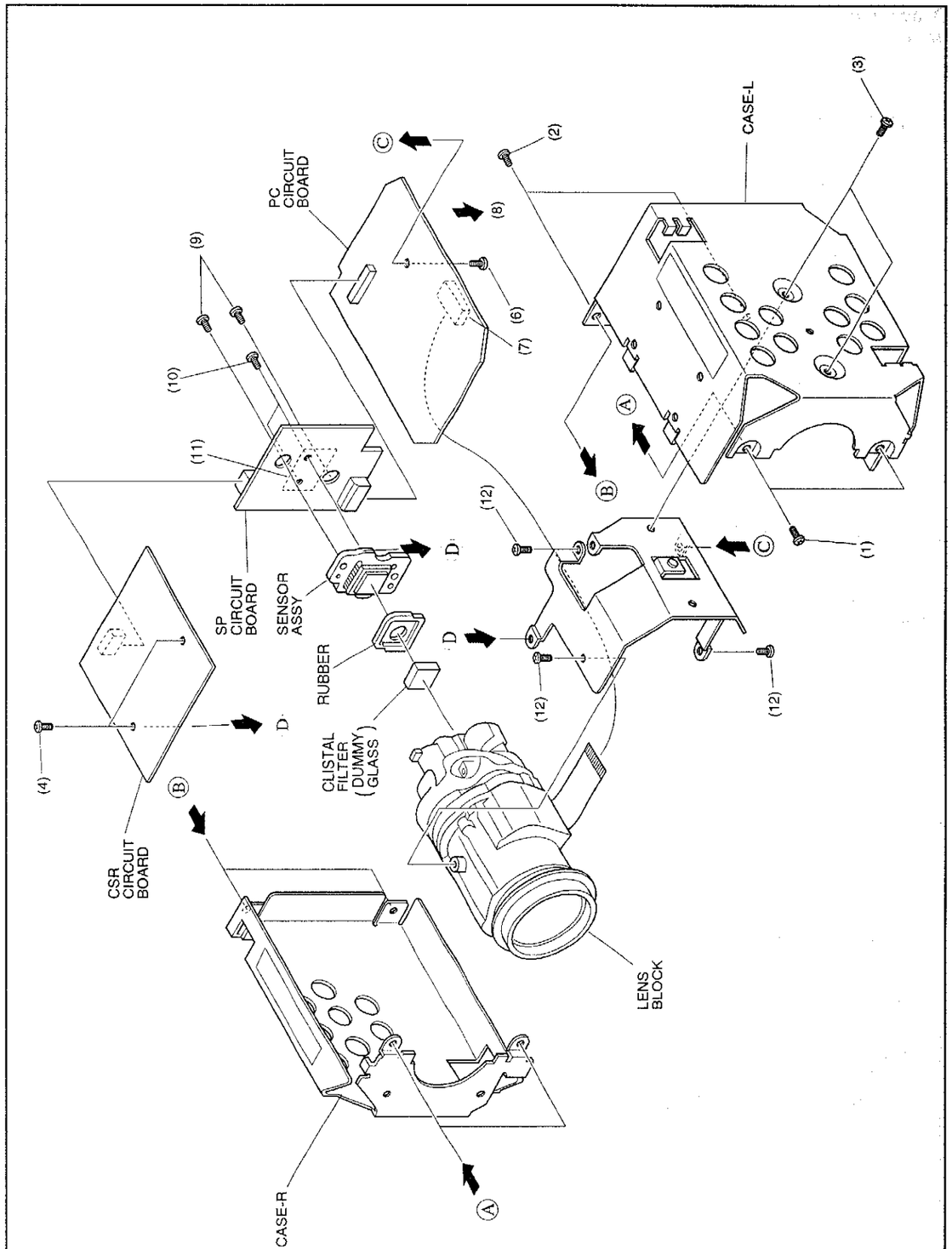


Fig. 2-2

CHAPTER 3 ELECTRIC CIRCUIT ADJUSTMENT

Trademark
MS-DOS is a registered trademark of Microsoft Corporation.

Abbreviation
MAP: Digital adjustment program for the camera.
DSP: Digital signal processor

1. CIRCUIT BOARD LOCATIONS

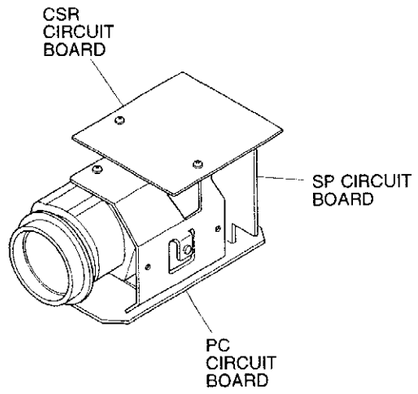


Fig. 3-1

2. TEST EQUIPMENT NECESSARY FOR ADJUSTMENT

Oscilloscope (dual trace) [& Vectorscope]
Digital Voltmeter (DVM)
Color Video Monitor
Adjustment Floppy Disk
Personal Computer
Personal Computer 9-pin or 25-pin (RS232C) Cable
DSP-R Jig
DSP Interface Connect Jig
Light Box (3100°K)
Light Balancing Filter C12
DC Power Supply (DC9V/3A)
DC Power Supply (DC5V/1A)

3. LIST OF CHARTS FOR ADJUSTMENT

Table 3-1

Gray Scale Chart	Color Bar Chart	Resolution Chart
Backfocus Adjustmant Chart		

4. ADJUSTMENT CONDITION

1. Use a light box with minimum flickering.
2. When using the video out (AV OUT) to perform adjustment, be sure to terminate the AV OUT jack with 75 ohms.
3. Place the light box approx. 30cm away from the camera (lens surface) when otherwise not specified.
4. Point the camera at the chart to full the video period when otherwise not specified.
5. Use the 10:1 probe of the oscilloscope when otherwise not specified.
6. When "Trigger the oscilloscope internally" is specified, set the time base of the oscilloscope to 10μs/div.

5. CONNECTION FOR ADJUSTMENT

Connect the camera, personal computer, jigs, etc. as shown Fig. 3-2.

Notes: 1. Perform the adjustment using a personal computer.

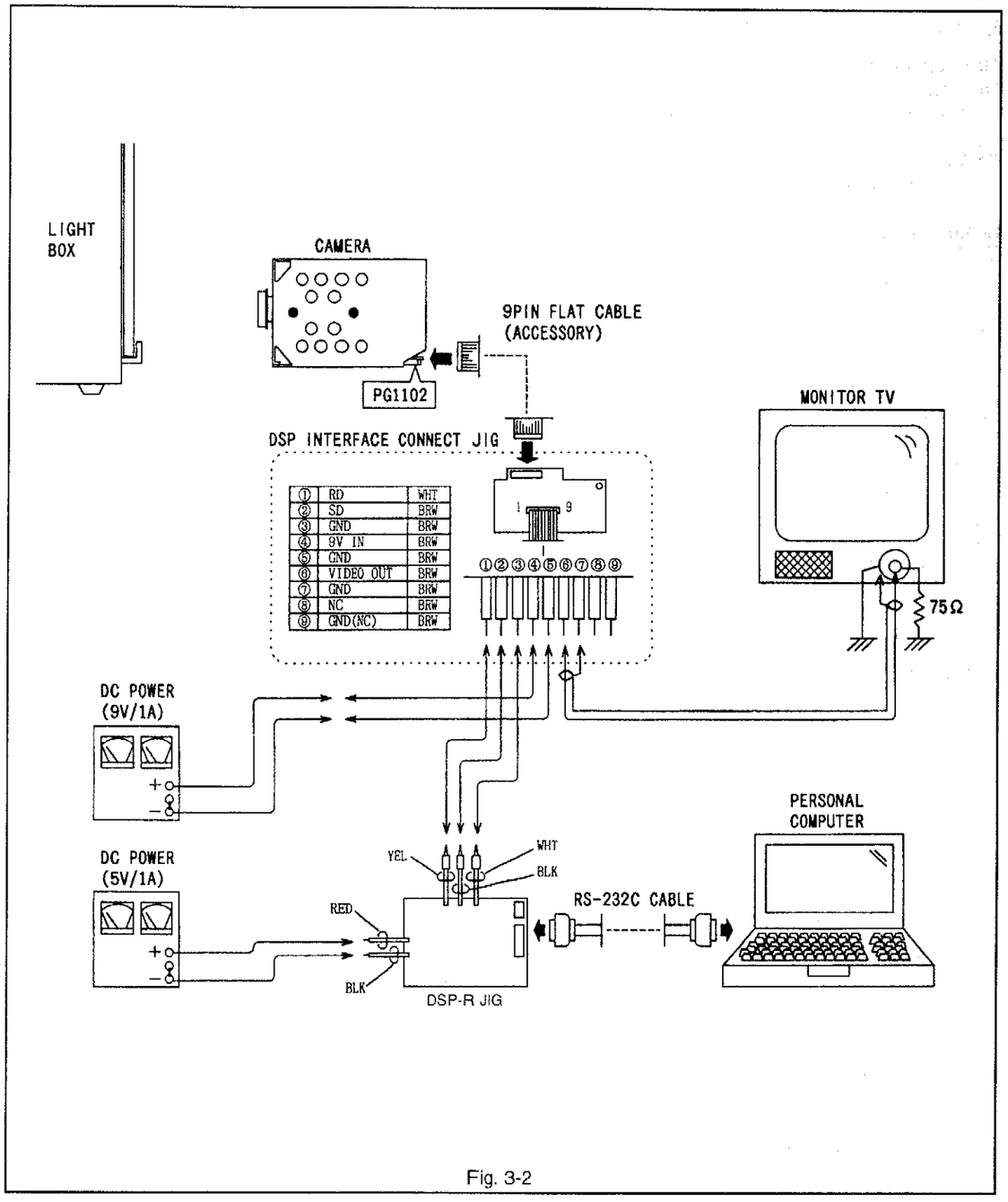


Fig. 3-2

6. CHECK AFTER REPLACING MAJOR COMPONENTS

After replacing major components, perform adjustments, referring to the table below.
The following table shows the minimum adjustments required after major components are replaced.
The table below may not apply when several components are replaced, depending on the symptom of the defect.

Caution: When EEP ROM or the PC circuit board is replaced, initialize the EEP ROM, referring to "7.3 Initial Setting by Model" then perform the all adjustments.

Table 3-2

■ For TYPE S914, S914E

ITEM No.	NAME OF ADJUSTMENT	NAME OF MAJOR COMPONENTS									
		SP Circuit Board	PC Circuit Board	IC1001	IC1103	IC1106	IC1107	IC1201	Lens Block		
INITIAL SETTING BY MODEL			●				●				
ELECTRIC VOLUME ADJUSTMENT PROCEDURE											
(1)	CDS Smpling Pulse Adjustment		●		●		●				
DIGITAL ADJUSTMENT PROCEDURE											
(1)	Auto Iris Control Adjustment	●	●	●		●	●	●	●		
(2)	Matrix Adjustment	●	●	●			●				
(3)	White Balance Adjustment	●	●	●			●				
(4)	Chroma Gain Adjustment	●	●	●			●				
AUTOFOCUS ADJUSTMENT PROCEDURE											
(1)	Zoom Trace Adjustment	●	●	●			●		●		
(2)	AF Noise Level Adjustment	●	●	●			●		●		
SPOT NOISE ADJUSTMENT PROCEDURE		●	●	●			●				

Table 3-3

■ For TYPE K914, K914E

ITEM No.	NAME OF ADJUSTMENT	NAME OF MAJOR COMPONENTS									
		SP Circuit Board	PC Circuit Board	IC1001	IC1103	IC1106	IC1107	IC1201	Lens Block		
INITIAL SETTING BY MODEL			●				●				
ELECTRIC VOLUME ADJUSTMENT PROCEDURE											
(1)	CDS Smpling Pulse Adjustment		●		●		●				
DIGITAL ADJUSTMENT PROCEDURE											
(1)	Auto Iris Control Adjustment	●	●	●		●	●	●	●		
AUTOFOCUS ADJUSTMENT PROCEDURE											
(1)	Zoom Trace Adjustment	●	●	●			●		●		
(2)	AF Noise Level Adjustment	●	●	●			●		●		
SPOT NOISE ADJUSTMENT PROCEDURE		●	●	●			●				

7. ADJUSTMENT PROCEDURE

Notes: 1. To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera/recorder and jig.
2. The following describes an example of the instructions of the personal computer and the menu display; they are different depending on the personal computer manufacturer and model. Refer to the instruction manual of personal computer.
3. When the error message appears during adjustment, refer to "8. Error Message". If a key is pressed after an error message appears, the ADJUSTMENT MENU is restored.

7.1 Connections for Adjustment

Connect the camera/recorder, DSP jig, personal computer, power supply, etc. as shown in Fig. 3-2.
Check that the camera/recorder is turned on.

7.2 How to Start the MAP

(1) Turn the personal computer on and start the MS-DOS system.

Note: Refer to the instruction manual of the personal computer for how to start computer.

(2) Load the adjustment floppy disk in to disk drive A and press **A:** [ENTER]

```
C>A:
A>
```

(3) Press **SMAP_IBM** [SPACE] **1** [ENTER].

Note: When you use a personal computer with two serial interface connectors and connect the DSP jig to serial interface connector 2, press SMAP_IBM 2.

```
C>
A>SMAP_IBM 1
```

```
Manual adjustment program for service station
Copyright (C) Hitachi LTD
```

```
**************************************************
MODEL SELECT
**************************************************
[1]     xxxxxxx
[2]     xxxxxxx
[3]     xxxxxxx
[4]     xxxxxxx
[5]     xxxxxxx
[P]     NEXT SELECTION
[ESC]   END
PLEASE SELECT THE TYPE OF THE SET.
PRESS [1] - [5] OR [P] OR [ESC]
```

(4) Select the number accodding to the model.
If [ESC] (escape) is pressed, the display before the MAP starts (MS-DOS) is restored.

Notes: 1. If the required model is not found, press the **P** key and select the model from the next screen.
2. If you specify the wrong model, press [ESC] (escape) to restore the MODEL SELECT display, then specify the correct model.
3. If you select number without a model name by mistake, the message shown in "MESSAGE WHEN OPERATED BY MISTAKE" will appear in the computer's display. Press any key to return the display to MODEL SELECT dispaly.

MESSAGE WHEN OPERATED BY MISTAKE

```
CAN NOT FIND THE DATA FILE
**** PRESS ANY KEY ****
```

```
SELECTED MODEL IS x x x x x x x
ARE YOU SURE ? (Y/N)
```

(5) Press **Y** key.
If **N** key is pressed, the computer's display returns to MODEL SELECT display.

MAIN MENU

```
**************************************************
MANUAL ADJUSTMENT PROGRAM
**************************************************
[A]     DATA INITIALIZE
[B]     ELECTRIC VOLUME
[C]     ADJUSTMENT
[D]     AUTO FOCUS
[E]     SPOT NOISE
[ESC]   END
PLEASE SELECT [A] - [E] OR [ESC]
```

7.3 Initial Setting by Model

Before Starting Initial Setting

1. This item describes how to initialize the EEP ROM. Be sure to perform this item after replacing EEP ROM or the PC circuit board.
   When other components are replaced, normally, it is not necessary to initialize the EEP ROM.
   Press [ESC] (escape) to return the computer's display to MAIN MENU.
2. Be sure to perform the following adjustments after completing the initial setting.
   - 7.4 Electric Volume Adjustment Procedure
   - 7.5 Digital Adjustment Procedure
   - 7.6 Autofocus Adjustment Procedure
   - 7.7 Spot Noise Adjustment Procedure

(1) Start the MAP.

MAIN MENU

```
**************************************************
        MANUAL ADJUSTMENT PROGRAM
**************************************************
              :
  [A]     DATA INITIALIZE
              :
              :
  PLEASE SELECT [A] - [E] OR [ESC]
```

(2) Press **A** key.

```
  « DATA WRITING »
START TO SEND DATA.  (Y/N)
```

(3) Press **Y** key to start.
Press **N** to return to MAIN MENU display.

(4) Perform adjustment according to the computer display hereafter.
See "8. Error Messages" if an error message appears on the computer display.

7.4 Electric Volume Adjustment Procedure

Before Starting Adjstment

When EEP ROM or the PC circuit board is replaced, initialize the EEP ROM, referring to "7.3 Initial Setting By Model" then perform all the electric volume adjustments.

(1) Start the MAP.

MAIN MENU

```
**************************************************
        MANUAL ADJUSTMENT PROGRAM
**************************************************
              :
  [B]     ELECTRIC VOLUME
              :
  PLEASE SELECT [A] - [E] OR [ESC]
```

(2) Press **B** key.

ELECTRIC VOLUME ADJ. MENU

```
**************************************************
        ELECTRIC VOLUME
**************************************************
  [1]     CDS SAMPLING PULSE
  [ESC]   RETURN TO MAIN MENU
  PLEASE SELECT [1] OR [ESC]
```

Note: 1. If [ESC] (escape) is pressed, the computer's display returns to MAIN MENU display.
2. To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera jig.

(1) CDS Sampling Pulse Adjustment

Purpose:
To suppress noise in the CCD sensor output signal and maximize the signal level.

Incompleted Phenomenon:
Diagonal beats and horizontal noise occur.

Condition:
Leave the camera/recorder for more than 2 minutes untill the circuits are stabilized after turing it on, then start adjustment.

Procedure:

ELECTRIC VOLUME ADJ. MENU

```
**************************************************
        ELECTRIC VOLUME
**************************************************
  [1]     CDS SAMPLING PULSE
  [ESC]   RETURN TO MAIN MENU
  PLEASE SELECT [1] OR [ESC]
```

Press **1** key.

Perform adjustment according to the computer display hereafter.
See "8. Error Messages" if an error message appears on the computer display.

7.5 Digital Adjustment Procedure

Before Starting Adjstment

When EEP ROM or the PC circuit board is replaced, initialize the EEP ROM, referring to "7.3 Initial Setting By Model" then perform all the digital adjustments

(1) Start the MAP.

MAIN MENU

```
**************************************************
        MANUAL ADJUSTMENT PROGRAM
**************************************************
              :
  [C]     ADJUSTMENT
              :
  PLEASE SELECT [A] - [E] OR [ESC]
```

(2) Press **C** key.

ADJUSTMENT MENU [For TYPE S914, S914E]

```
**************************************************
        ADJUSTMENT
**************************************************
  [1]     AUTO IRIS CONTROL
  [2]     MATRIX
  [3]     WHITE BALANCE
  [4]     CHROMA GAIN
  [ESC]   RETURN TO MAIN MENU
  PLEASE SELECT [1]- [4] OR [ESC]
```

ADJUSTMENT MENU [For TYPE K914, K914E]

```
**************************************************
        ADJUSTMENT
**************************************************
  [1]     AUTO IRIS CONTROL
  [ESC]   RETURN TO MAIN MENU
  PLEASE SELECT [1] OR [ESC]
```

(3) Select the number of the required adjustment.

Notes: 1. If [ESC] (escape) is pressed, the computer's display returns toMAIN MENU display.
2. To complete adjustment, press the [ESC] (escape) twice to restore the MS-DOS screen and then turn off the camera and jig.

(1) Auto Iris Control Adjustment

Purpose:
To set the iris control data.
Incompleted Phenomenon:
The picture becomes too bright.
The picture becomes too dark.
Condition:
Point the camera at the light box without a chart to full the screen (at wide-angle).
Procedure:

ADJUSTMENT MENU

```
**********************************************
                ADJUSTMENT
**********************************************
      [1]     AUTO IRIS CONTROL
                    :
```

Press **1** key.

Perform adjustment according to the computer display hereafter.
See "8. Error Messages" if an error message appears on the computer display.

```
ADJUSTMENT FINISHED
PRESS ANY KEY
```

Press any key to return to ADJUSTMENT MENU display.

Turn the power off for 5 seconds and then on again.

(2) Matrix Adjustment *[For TYPE S914, S914E]* (Fig. 3-3)

Purpose:
To compensate for uneveness in the chroma signal.
Incompleted Phenomenon:
Color reproduction becomes defective.
Equipment/Jig:
Oscilloscope
Test Point:
Video Out (AV OUT)
Condition:
Point at a color bar chart.
Procedure:

ADJUSTMENT MENU

```
**********************************************
                ADJUSTMENT
**********************************************
                    :
      [2]     MATRIX
                    :
   PLEASE SELECT [1]- [4] OR [ESC]
```

Press **2** key.

```
« ADJUSTMENT OF BLUE MATRIX »
        ROUGH ADJUSTMENT
[U]             UP
[D]             DOWN
        FINE ADJUSTMENT
[Ctrl] + [U]    UP
[Ctrl] + [D]    DOWN
[ENTER]         RETURN TO MENU
[ESC]           QUIT
```

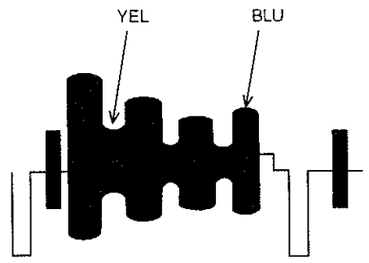
Press the **D** key to minimize the yellow (YEL) level.
Press the **U** key so the ratio between yellow (YEL) and blue (BLU) levels is 1:4.
Press the [Ctrl] key and hold it down, then press the **U** and **D** keys so the ratio between yellow (YEL) and blue (BLU) levels is 1:4.

Press [Enter] Key, and the dispaly changes as follows.

```
« ADJUSTMENT OF BLUE MATRIX »
DATA WRITING TO EEPROM
```

```
« ADJUSTMENT OF BLUE MATRIX »
ADJUSTMENT FINISHED
PRESS ANY KEY
```

Press any key to return to ADJUSTMENT MENU display.



YLE : BLU
1 : 4

Fig. 3-3

Fig. 3-3

(3) White Balance Adjustment *[For TYPE S914, S914E]*

Purpose:
To set white balance under the color temperature which becomes a reference for the auto white balance circuit.
Incompleted Phenomenon:
Color of the subject is different from that of the picture.
A white subject is not seen as white.
Test Point:
Video Out (AV OUT)
Condition:
Attach a C12 filter.
Point at a gray scale chart (at wide-angle).
Procedure:

ADJUSTMENT MENU

```
**********************************************
                ADJUSTMENT
**********************************************
                    :
      [3]     WHITE BALANCE
                    :
   PLEASE SELECT [1]- [4] OR [ESC]
```

Press **3** key.

```
« WHITE BALANCE ADJUSTMENT »
INPUT DATA OF OFFSET  FOR R-B --> 00
```

Press **1 5** to input the data.

Press [Enter] key, and the display changes as follows.

```
« WHITE BALANCE ADJUSTMENT »
INPUT DATA OF OFFSET  FOR Mg-G --> 00
```

Press **1 A** to input the data.

Press [Enter] key, and the display changes as follows.

Perform adjustment according to the computer display hereafter.
See "8 Error Messages" if an error message appears on the computer display.

(4) Chroma Gain Adjustment *[For TYPE S914, S914E]* (Figs. 3-4, 3-5, 3-6)

Purpose:
To set the color saturation under the reference color temperature.
Incompleted Phenomenon:
Color of the picture is denser than that of the subject.
Color of the picture is lighter than that of the subject.
Equipment/Jig:
Oscilloscope (Vectorscope)
Test Point:
Video Out (AV OUT)
Condition:
Attach a C12 filter.
Point at a color bar chart.
Procedure:

ADJUSTMENT MENU

```
**************************************************
                  ADJUSTMENT
**************************************************
                      :
          [4]     CHROMA GAIN
          [ESC]   RETURN TO MAIN MENU
          PLEASE SELECT [1]- [4] OR [ESC]
```

Press **4** key.

```
        « ADJUSTMENT OF CHROMA GAIN »
                ROUGH ADJUSTMENT
        [U]         CHROMA GAIN UP
        [D]         CHROMA GAIN DOWN
                FINE ADJUSTMENT
        [Ctrl] + [U]    CHROMA GAIN UP
        [Ctrl] + [D]    CHROMA GAIN DOWN
        [ENTER]     SAVE & RETURN TO MENU
        [ESC]       QUIT
```

WhenUsing an Oscilloscope:
Press the **U** and **D** keys to set the red level to around 570mVp-p.
Press the [Ctrl] key and hold it down, then press the **U** and **D** keys so the red level is 570mV ± 20mVp-p.
(Fig. 3-4)

When Using a Vectorscope:
Press the **U** and **D** keys to set the red vector to around 200% of the burst.
Press the [Ctrl] key and hold it down, then press the **U** and **D** keys so the red vector is 200% ± 5%. (Figs. 3-5, 3-6)

Press [Enter] key, and the display changes as follows.

```
« ADJUSTMENT OF CHROMA GAIN »
DATA WRITING INTO EEPROM.
```

```
« ADJUSTMENT OF CHROMA GAIN »
ADJUSTMENT FINISHED.
PRESS ANY KEY.
```

Press any key to return to ADJUSTMENT MENU display.

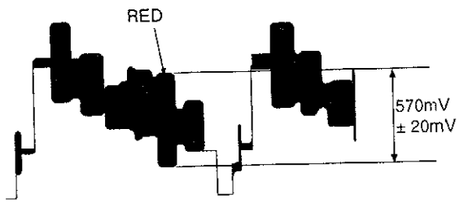


Fig. 3-4

[For TYPE S914]

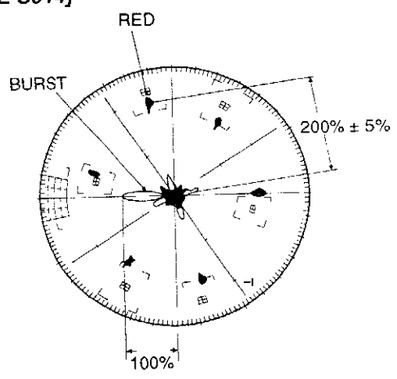


Fig. 3-5

[For TYPE S914E]

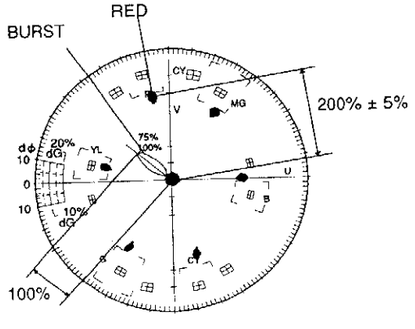


Fig. 3-6

7.6 Autofocus Adjustment Procedure

Before Starting Adjustment
Be sure to perform this adjustment after replacing or initializing the lens block, parts in the PC circuit board (EEPROM).

(1) Start the MAP.

MAIN MENU

```
**************************************************
          MANUAL ADJUSTMENT PROGRAM
**************************************************
                      :
          [D]     AUTO FOCUS
                      :
          PLEASE SELECT [A] - [E] OR [ESC]
```

(2) Press **D** key.

AF ADJ. MENU

```
**************************************************
              AUTO FOCUS ADJUSTMENT
**************************************************
[1]     ADJUSTMENT OF ZOOM/FOCUS TRACKING
[2]     ADJUSTMENT OF AF NOISE LEVEL
[ESC]   RETURN TO MENU
          PLEASE SELECT [1], [2] OR [ESC]
```

(3) Select the number of the required adjustment.

Note: To complete adjustment, press the [ESC] (escape) twice to restore the MS-DOS screen and then turn off the camera and jig.

(1) Zoom Trace Adjustment

Purpose:
To set the out-of-focus correction level during zooming.
Incompleted Phenomenon:
Focus is lost during zooming.
Equipment/Jig:
Color Video Monitor
Backfocus Chart
Test Point:
Video Out (AV OUT)
Condition:
Point at the backfocus chart, 1500 ± 5 mm away from the lens surface.
Light the chart with 200-400 lux.
Caution When Adjustment:
1) Measure the distance between the chart and lens surface precisely.
2) Place the chart as parallel as possible to the lens surface.
3) The backfocus chart should always be at the center of the monitor screen when the zoom is set to the wide-angle and telephoto ends.
4) The zoom trace adjustment procedure is completed within 2 minutes after it is selected.
5) Do not place any obstruction between the lens and chart during adjustment.
Procedure:

AF ADJ. MENU

```
**************************************************
              AUTO FOCUS ADJUSTMENT
**************************************************
[1]     ADJUSTMENT OF ZOOM/FOCUS TRACKING
[2]     ADJUSTMENT OF AF NOISE LEVEL
[ESC]   RETURN TO MENU
          PLEASE SELECT [1], [2] OR [ESC]
```

Press **1** key.

Perform adjustment according to the computer display hereafter.
See "8. Error Messages" if an error message appears on the computer display.

(2) AF Noise Level Adjustment

Purpose:

To set the noise level in the autofocus circuit.

Incompleted Phenomenon:

It takes time until a subject is brought into focus.
Correct focus is not obtained.

Equipment/Jig:

Color Video Monitor

Test Point:

Video Out (AV OUT)

Condition:

Set the focus to AUTO.
Point at a light box without a chart inserted at a distance of up to 10cm.

Caution When Adjustment:

1) Place the light box as parallel as possible to the lens surface.
2) The AF noise level adjustment procedure will be completed within thirty seconds after it is selected.

Procedure:

AF ADJ. MENU

```
**************************************************
          AUTO FOCUS ADJUSTMENT
**************************************************
[1]    ADJUSTMENT OF ZOOM/FOCUS TRACKING
[2]    ADJUSTMENT OF AF NOISE LEVEL
[ESC]  RETURN TO MENU
        PLEASE SELECT [1], [2] OR [ESC]
```

Press **2** key.

Perform adjustment according to the computer display hereafter.
See "8. Error Messages" if an error message appears on the computer display.

7.7 Spot Noise Adjustment Procedure

Before Starting Adjustment

1. The spot noise is identified as the fine white noise that appears when the lens cap is attached after the power is turn on.
2. Perform this adjustment only for products with which spot noise occurs. (However, there is no problem even if products free from spot noise are adjusted.)
3. After replacing the CCD image sensor or PC circuit board (EEPROM), check whether or not spot noise occurs and then proceed with adjustment.

(1) Start the MAP.

MAIN MENU

```
**************************************************
          MANUAL ADJUSTMENT PROGRAM
**************************************************
                    :
          [E]    SPOT NOISE
        PLEASE SELECT [A] - [E] OR [ESC]
```

(2) Cap the lens.

(3) Connect the color video monitor to video out.

(4) Press **E** key.

(5) Perform adjustment according to the computer display hereafter.
See "8. Error Messages" if an error message appears on the computer display.

Note: To complete adjustment, press the [ESC] (escape) key twice to restore the MS-DOS screen and then turn off the camera and jig

8. ERROR MESSAGE

8.1 Camera Electric Volume and Digital Adjustments

ERROR MESSAGE	COUNTERMEASURE
ERROR OCCURRED. IRIS TROUBLE PRESS ANY KEY	· Check whether or not power is supplied. · Check the values of the iris drive circuit. · Defective soldering, damage to pattern, etc. in the above circuit. · Check the iris block and replace it if necessary.
ERROR OCCURRED ON dax ADJUSTMENT PRESS ANY KEY	· Check the values in the hall amp circuit. · Defective soldering, damage to pattern, etc. in the above circuit.
D RANGE OVER. ERROR ON dax ADJUSTMENT PRESS ANY KEY.	· Check the values in the hall amp circuit. · Defective soldering, damage to pattern, etc. in theabove circuit.
ERROR OCCURRED ON da0 and da1 ADJUSTMENT PRESS ANY KEY	· Check the values in the hall amp circuit and its peripheral circuits. · Defective soldering, damage to pattern, etc. in the above circuits.
FILE NOT FOUND !!!! PRESS ANY KEY	· The adjustment program (file) cannot be found. · Check the adjustment floppy disk and replace it if necessary.
FILE OPEN ERROR !!!! PRESS ANY KEY	· The adjustment program (file) does not start. · Check the adjustment floppy disk and replace it if necessary.
ERROR OCCURRED ON C DUTY ADJUSTMENT PRESS ANY KEY	· Check the values of the iris drive circuit. · Defective soldering, damage to pattern, etc. in the above circuit.
ERROR OCCURRED ON FDET ADJUSTMENT PRESS ANY KEY	· Supply power again and re-adjust. · Check the values in the hall amp circuit. · Defective soldering, damage to pattern, etc. in the above circuit.
ERROR OCCURRED. ZOOM DOES NOT WORK PRESS ANY KEY	· Supply power again and re-adjust.
TOO BRIGHT PRESS ANY KEY	· The subject is too bright. · Move the camera further away from the light box.
TOO DARK PRESS ANY KEY	· The subject is too dark. · Check the light box. · Move the camera closer to the light box.
D RANGE OVER ERROR ON HALL AMP IRIS CANNOT OPEN ANY MORE PRESS ANY KEY	· Supply power again and re-adjust. · The subject is too dark. · Check the light box. · Move the camera closer to the light box. · Check the values in the hall amp circuit. · Defective soldering, damage to pattern, etc. in the above circuit.
STAURATION ERROR. TOO BRIGHT PRESS ANY KEY	· The subject is too bright. · Move the camera further away from the light box.
CAN'T ADJUST WHITE BALANCE PLEASE RETRY PRESS ANY KEY	· The subject is too bright or too dark. · Check the light box. · Move the camera closer to or away from the light box. · Supply power again and re-adjust.

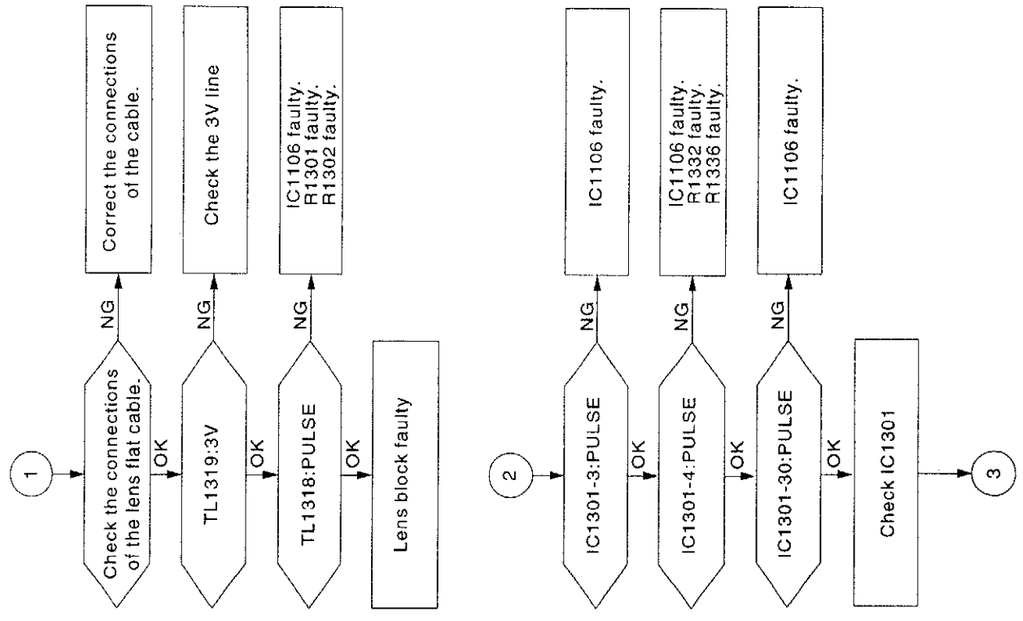
8.2 Autofocus Adjustment

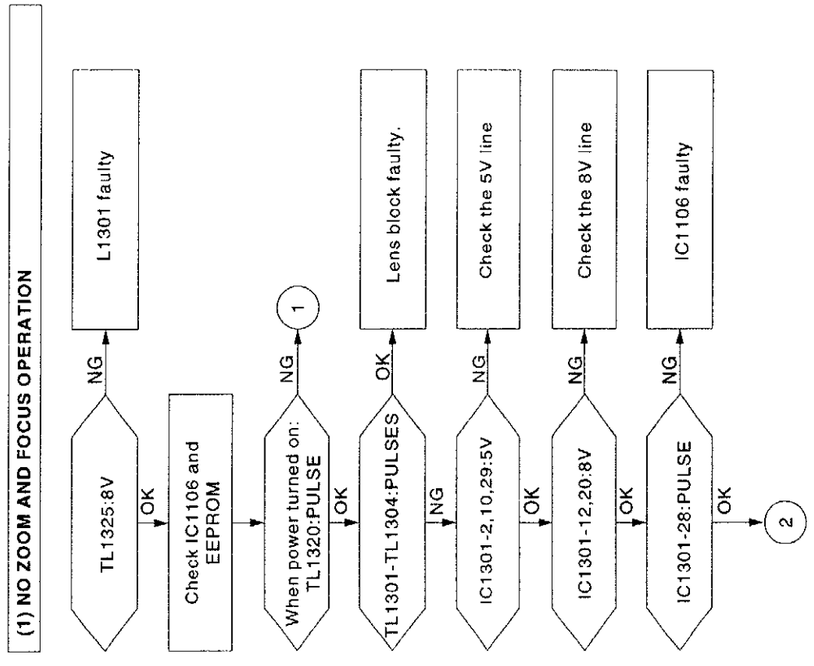
ERROR MESSAGE	COUNTERMEASURE
ERROR OCCURRED. ZOOM DOES NOT WORK PRESS ANY KEY	· Supply power again and re-adjust.
TIME OUT ERROR ON FOCUS	· Check the conditions of subject. · If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. · Refer to (1) of TROUBLESHOOTING OF AUTOFOCUS.
TIME OUT ERROR ON ZOOM	· If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. · Refer to (2) of TROUBLESHOOTING OF AUTOFOCUS.
TIME OUT ERROR ON AF STEP	· Check the conditions of subject. · If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. · Refer to (1) of TROUBLESHOOTING OF AUTOFOCUS.
AF LIMIT OVER	· Check the conditions of subject. · If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. · Refer to (2) of TROUBLESHOOTING OF AUTOFOCUS.
AF ERROR	· If this error message appears even when the adjustment is performed 2 or 3 times, the autofocus circuit system is defective. · Refer to (1) of TROUBLESHOOTING OF AUTOFOCUS.
TOO DARK	·Insufficient lighting. Check the subject.

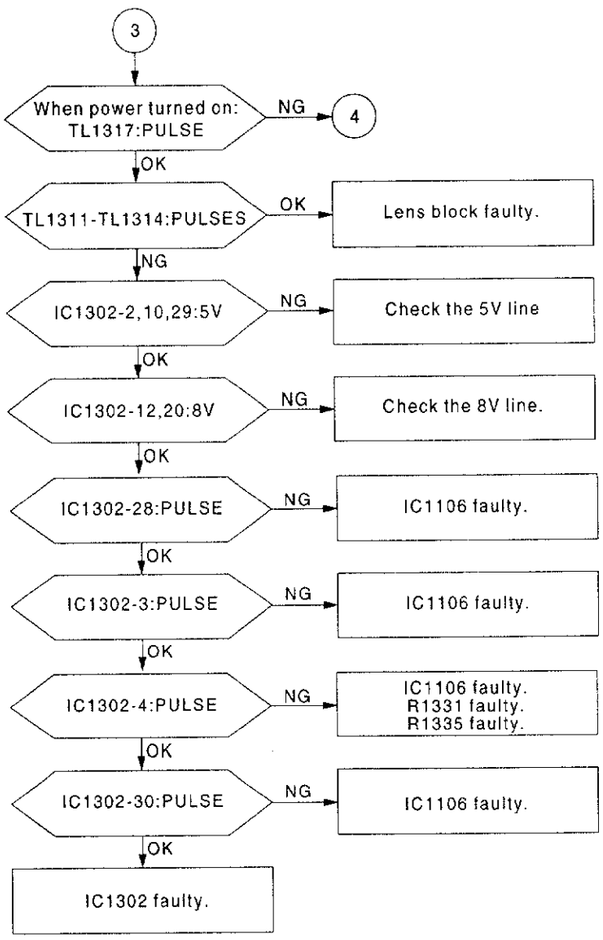
8.3 Spot Noise Adjustment

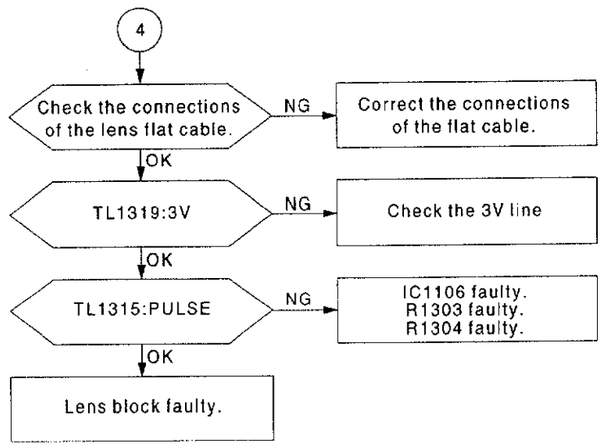
ERROR MESSAGE	COUNTERMEASURE
ERROR!! SPOT NOISE COMPENSATION IS STOPPED BY INITIAL DATA. PLEASE CHECK THE EEPROM. PRESS ANY KEY.	· Spot noise compensation is inhibited by the data in the EEPROM. · Turn the power on again. · Data in the EEPROM is defective. (Initialize it.) · Check the EEPROM,and if necessary,replace it.
ERROR!! THRESHOLD DATA ERROR. PLEASE CHECK THE EEPROM. PRESS ANY KEY.	· Turn the power on again. · Data in the EEPROM is defective. (Initialize it.) · Check the EEPROM,and if necessary,replace it.
ERROR!! THE SPOT NOISE IS TOO MANY. CAN'T COMPENSATE ANY MORE. PRESS ANY KEY.	· The amount of spot noise that can be compensated reaches the limit. · Turn the power on again. · Check the CCD image sensor,and if necessary,replace it.

9. TROUBLESHOOTING OF AUTOFOCUS

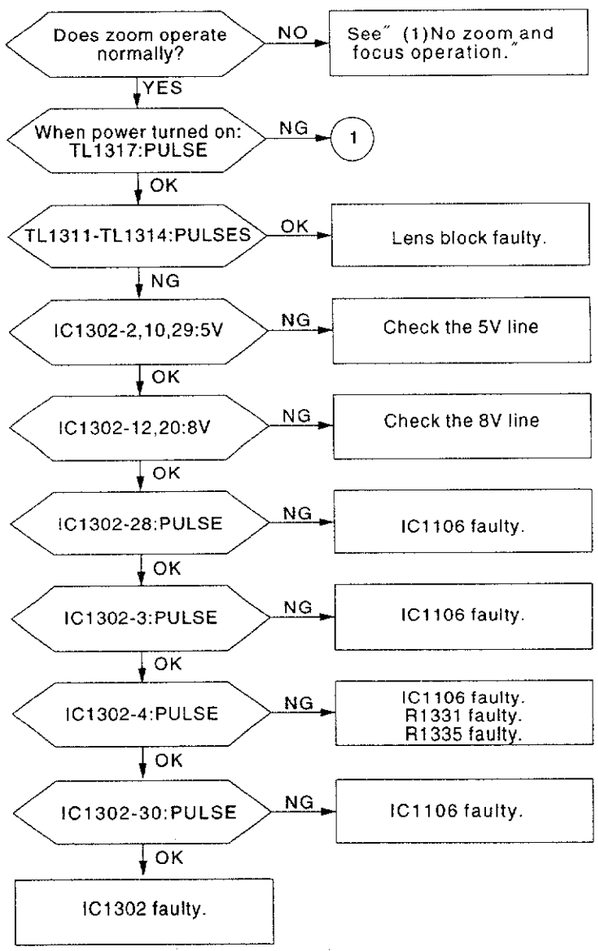


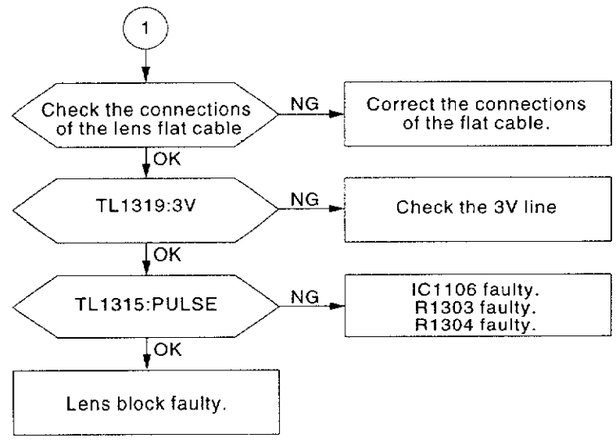




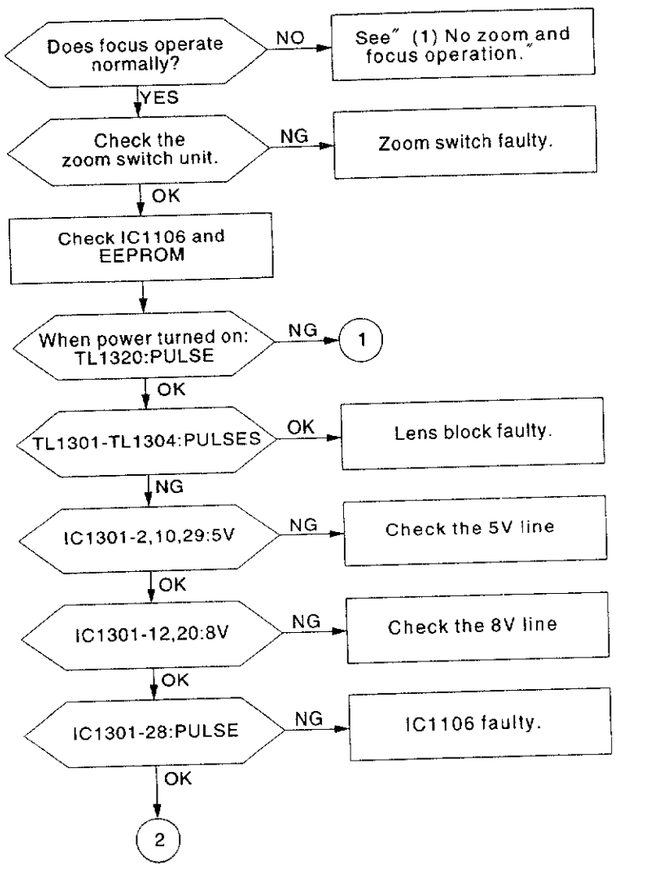


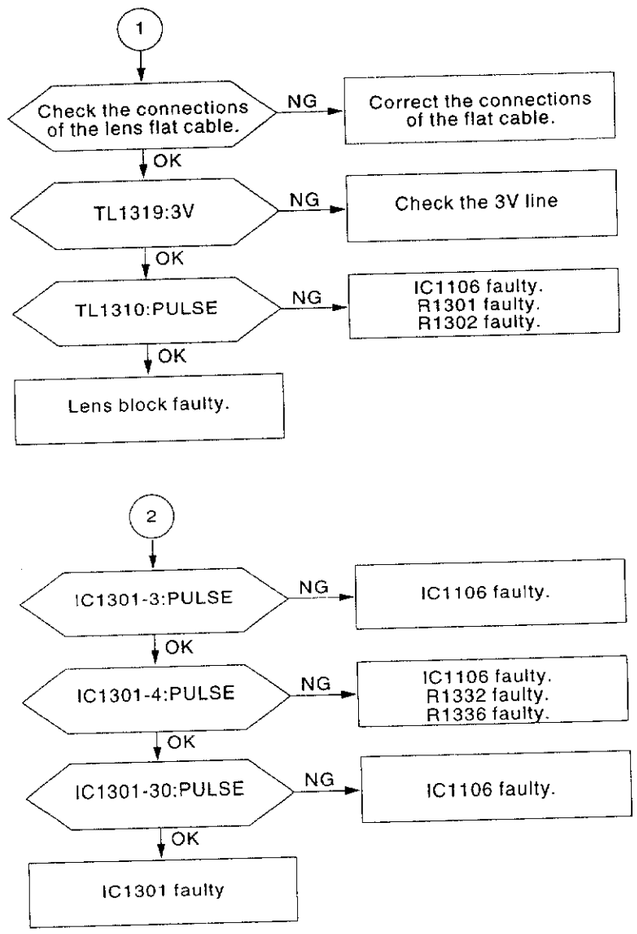
(2) NO FOCUS LENS OPERATION



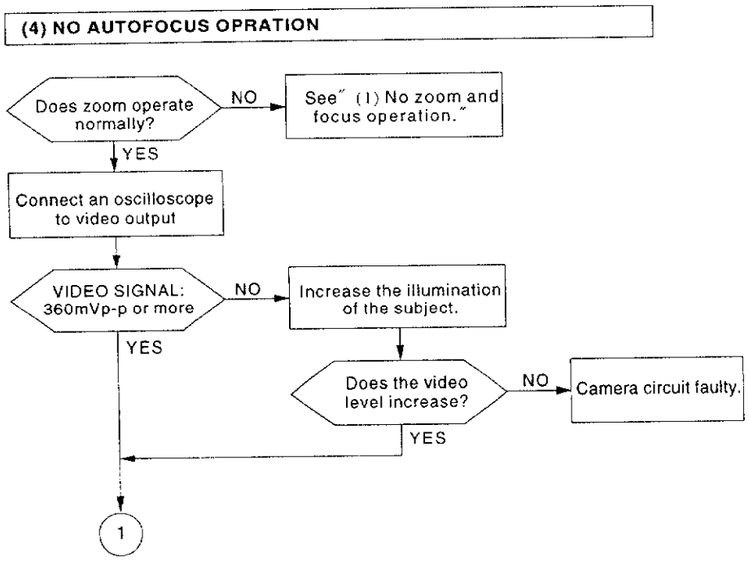


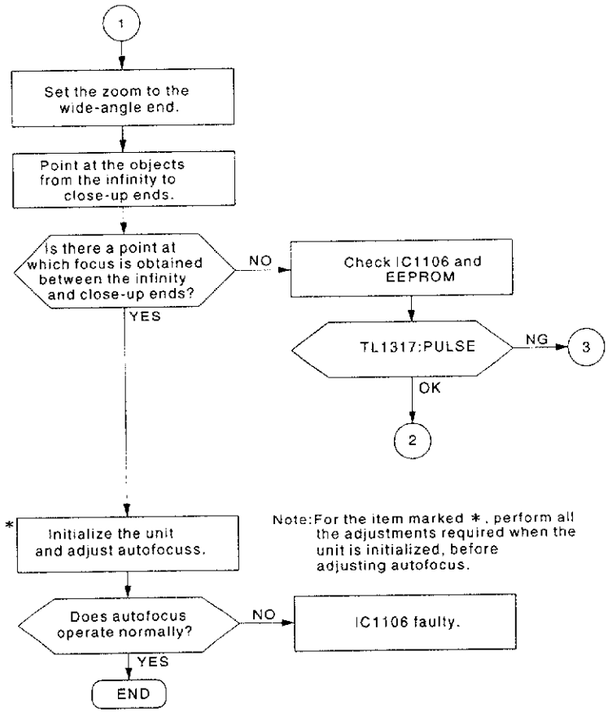
(3)NO ZOOM OPERATION

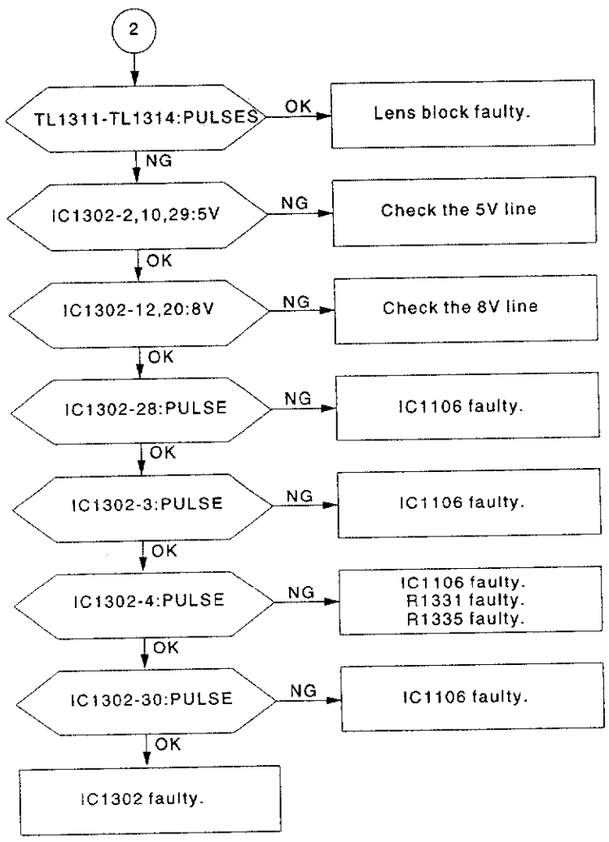


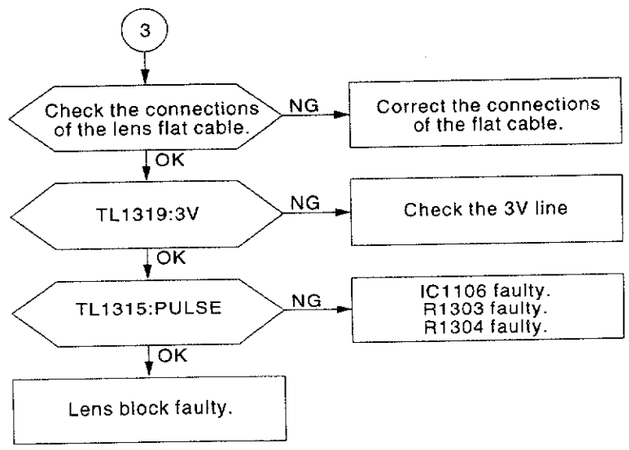


(4) NO AUTOFOCUS OPRATION

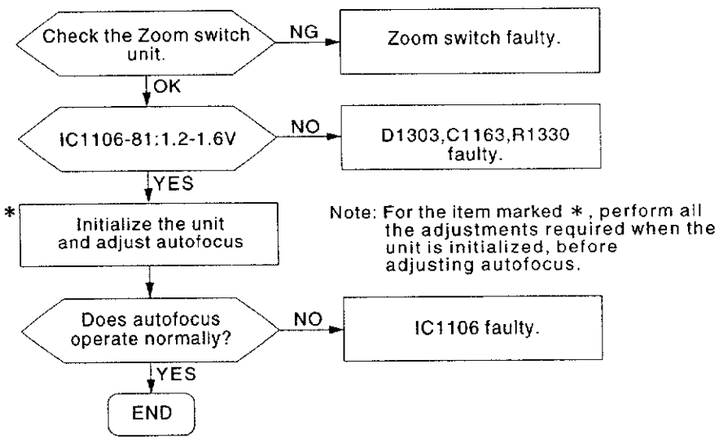



1
Set the zoom to the wide-angle end.
Point at the objects from the infinity to close-up ends.
Is there a point at which focus is obtained between the infinity and close-up ends?
NO
Check IC1106 and EEPROM
YES
TL1317:PULSE
NG
3
OK
2
*
Initialize the unit and adjust autofocuss.
Note: For the item marked *, perform all the adjustments required when the unit is initialized, before adjusting autofocus.
Does autofocus operate normally?
NO
IC1106 faulty.
YES
END



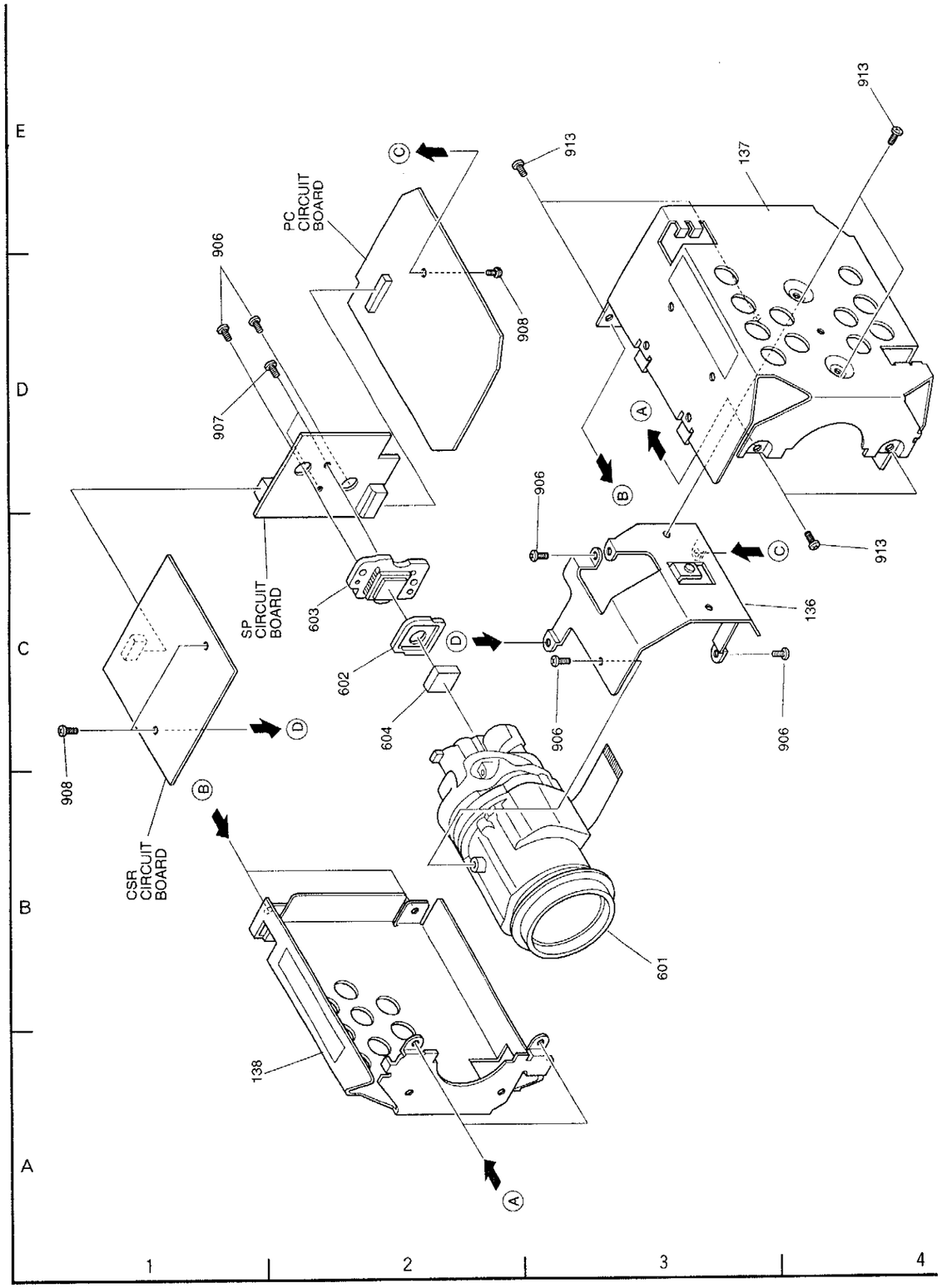


(5) SUBJECT IS GREATLY OUT-OF-FOCUS WHEN ZOOMED.



Note: For the item marked *, perform all the adjustments required when the unit is initialized, before adjusting autofocus.

CHAPTER 4 EXPLODED VIEW



CHAPTER 5 REPLACEMENT PARTS LIST

1. MECHANICAL PARTS LIST

SYMBOL NO	P-NO	DESCRIPTION
136	NA17071	CHASSIS, CAMERA
137	NA17051	CHASSIS, L
138	NA17061	CHASSIS, R
601	KQ10671	LENS, ZOOM
602	NX11252	RUBBER
603	UE12325	CCD IMAGE SENSOR ASSY
604	DT10151	CRYSTAL
906	7775945	SCREW(2X5)
907	8650103	SCREW(2X3)
908	8650105	SCREW (2X5)
913	7775963	SCREW(2X3)

2. ELECTRICAL PARTS LIST

SYMBOL NO	P-NO	DESCRIPTION
		CAPACITORS
C1001	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C1002	0206672	CHIP CAPACITOR 10UF+-20% 16V
C1003	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C1004	0893211	CERAMIC CHIP 150PF+-10% 50V
C1005	0206672	CHIP CAPACITOR 10UF+-20% 16V
C1006	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1007	AA00393R	CHIP CERAMIC 1.0UF+80-20% 50V
C1008	AA00393R	CHIP CERAMIC 1.0UF+80-20% 50V
C1009	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1101	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1102	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1103	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C1104	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1105	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1106	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1107	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1108	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1109	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1110	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1111	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1112	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1113	0206673	ELECTROLYTIC 33UF 6.3V
C1114	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1115	0893119	CERAMIC CHIP 33PF+-5% 50V
C1118	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1119	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1120	AA00412R	CERAMIC CHIP 10UF+-80-20% 16V
C1121	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1122	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1123	0893168	CERAMIC CHIP 330PF+-5% 50V
C1124	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1125	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1126	0206671	ELECTROLYTIC 10UF 10V
C1127	0806019	ELECTROLYTIC 2.2UF 10V
C1128	AD10273R	CHIP RESISTOR 100UF+-20% 6.3V
C1129	AD10264R	CHIP RESISTOR 10UF+-20% 16V
C1130	0893119	CERAMIC CHIP 33PF+-5% 50V
C1131	0893119	CERAMIC CHIP 33PF+-5% 50V
C1132	0893117	CERAMIC CHIP 22PF+-5% 50V
C1133	AA00412R	CERAMIC CHIP 10UF+-80-20% 16V
C1134	AA00412R	CERAMIC CHIP 10UF+-80-20% 16V
C1135	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1136	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1137	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1138	0893117	CERAMIC CHIP 22PF+-5% 50V
C1139	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1141	AA00412R	CERAMIC CHIP 10UF+-80-20% 16V
C1142	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1143	AA00412R	CERAMIC CHIP 10UF+-80-20% 16V
C1145	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1146	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1147	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1148	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1149	0893014	CERAMIC CHIP 0.01UF+-10% 25V
C1150	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C1151	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C1152	0202328	CERAMIC CHIP 1.0UF+80-20% 16V
C1154	0893186	CERAMIC CHIP 0.033UF+-10% 16V
C1156	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1158	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1159	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1160	0893193	CERAMIC CHIP 0.01UF+-10% 25V

SYMBOL NO	P-NO	DESCRIPTION
C1162	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1163	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1165	AA00393R	CHIP CERAMIC 1.0UF+80-20% 50V
C1166	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1167	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1169	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1173	0806027	ELECTROLYTIC 4.7UF 4V
C1174	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1175	0893121	CERAMIC CHIP 39PF+-5% 50V
C1176	0202319	CERAMIC CHIP 22PF+-2% 50V
C1177	0893121	CERAMIC CHIP 39PF+-5% 50V
C1178	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1179	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1180	0893123	CERAMIC CHIP 56PF+-5% 50V
C1182	0893123	CERAMIC CHIP 56PF+-5% 50V
C1186	0893122	CERAMIC CHIP 47PF+-5% 50V
C1187	0893121	CERAMIC CHIP 39PF+-5% 50V
C1189	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1191	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1193	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C1195	0893119	CERAMIC CHIP 33PF+-5% 50V
C1196	0893175	CERAMIC CHIP 1000PF+-5% 50V
C1197	0893175	CERAMIC CHIP 1000PF+-5% 50V
C1198	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1199	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1201	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1202	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1203	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1204	0893132	CERAMIC CHIP 270PF+-5% 50V
C1205	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1206	0893007	CERAMIC CHIP 0.082UF+-10% 16V
C1207	0893013	CERAMIC CHIP 0.22UF+-10% 16V
C1208	0893113	CERAMIC CHIP 10PF+-0.5% 50V
C1209	0893133	CERAMIC CHIP 330PF+-5% 50V
C1210	0893133	CERAMIC CHIP 330PF+-5% 50V
C1211	0893133	CERAMIC CHIP 330PF+-5% 50V
C1212	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C1301	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1302	0893215	CERAMIC CHIP 3300PF+-10% 50V
C1303	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1304	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1305	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1306	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1307	0893215	CERAMIC CHIP 3300PF+-10% 50V
C1308	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1309	0893217	CERAMIC CHIP 4700PF+-10% 50V
C1310	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1311	0206672	CHIP CAPACITOR 10UF+-20% 16V
C1312	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1313	0893225	CERAMIC CHIP 0.1UF+80-20% 16V
C1317	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1318	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1319	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1320	0893193	CERAMIC CHIP 0.01UF+-10% 25V
C1501	0206671	ELECTROLYTIC 10UF 10V
C1502	0893165	CERAMIC CHIP 180PF+-5% 50V
C1503	0893202	CERAMIC CHIP 330PF+-10% 50V
C1504	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C1505	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C1506	0893013	CERAMIC CHIP 0.22UF+-10% 16V
C1507	0209942	CERAMIC CHIP 100PF+-5% 50V
C1508	0893013	CERAMIC CHIP 0.22UF+-10% 16V
C1510	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C1512	0893008	CERAMIC CHIP 0.1UF +-10% 16V
C1513	0893165	CERAMIC CHIP 180PF+-5% 50V
C1514	0893202	CERAMIC CHIP 330PF+-10% 50V
C1515	0893158	CERAMIC CHIP 56PF+-5% 50V
C1516	0893203	CERAMIC CHIP 390PF+-10% 50V
C1517	0893165	CERAMIC CHIP 180PF+-5% 50V
C1518	0893202	CERAMIC CHIP 330PF+-10% 50V
C1519	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1520	0206671	ELECTROLYTIC 10UF 10V
C1521	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1522	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1523	0206671	ELECTROLYTIC 10UF 10V
C1524	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1525	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1526	0206671	ELECTROLYTIC 10UF 10V
C1527	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1528	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1529	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1530	AA00335R	CHIP CERAMIC 1.0UF+80-20% 25V
C1531	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1532	AA00335R	CHIP CERAMIC 1.0UF+80-20% 25V
C1581	0893062	CERAMIC CHIP 1UF+80-20% 16V
C1582	0893011	CERAMIC CHIP 0.15UF+-10% 16V
C1583	0893179	CERAMIC CHIP 0.1UF+-10% 16V

RESISTORS

R1001	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R1002	0790024	CHIP RESISTOR 100 OHM+-5% 1/16W
R1003	0103823	CHIP RESISTOR 220HM+-5% 0.1W
R1004	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1007	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1102	AQ00231R	CHIP RESISTOR 24KOHM+-1% 1/16W
R1107	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R1108	0790028	CHIP RESISTOR 220 OHM+-5% 1/16W
R1109	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
R1110	0790025	CHIP RESISTOR 120 OHM+-5% 1/16W
BL1103	BM00137R	FILTER
BL1104	BM00137R	FILTER
R1113	0790011	CHIP RESISTOR 10 OHM+-5% 1/16W
R1114	AQ00218R	CHIP RESISTOR 8.2KOHM+-1% 1/16W
R1115	AQ00247R	CHIP RESISTOR 100KOHM+-1% 1/16W
R1116	AQ00196R	CHIP RESISTOR 1.2KOHM+-1% 1/16W
R1117	AQ00203R	CHIP RESISTOR 2.2KOHM+-1% 1/16W
R1118	AQ00205R	CHIP RESISTOR 2.7KOHM+-1% 1/16W
R1119	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1120	0104545	CHIP RESISTOR 1.24KOHM+-1% 1/16W
R1121	AQ00215R	CHIP RESISTOR 6.2KOHM+-1% 1/10W
R1122	AQ00236R	CHIP RESISTOR 39KOHM+-1% 1/16W
R1123	AQ00194R	CHIP RESISTOR 1.0KOHM+-1% 1/16W
R1124	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1125	AQ00212R	CHIP RESISTOR 4.7KOHM+-1% 1/16W
R1126	AQ00198R	CHIP RESISTOR 1.5KOHM+-1% 1/16W
R1139	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1140	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1141	0790057	CHIP RESISTOR 33KOHM+-5% 1/16W
R1142	0790034	CHIP RESISTOR 560 OHM+-5% 1/16W
R1143	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1145	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1146	0790037	CHIP RESISTOR 1KOHM+-5% 1/16W
R1149	0790055	CHIP RESISTOR 22KOHM+-5% 1/16W
R1153	0790045	CHIP RESISTOR 3.9KOHM+-5% 1/16W
R1158	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1159	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1160	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1161	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1162	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W

SYMBOL NO	P-NO	DESCRIPTION
R1163	AQ00185R	CHIP RESISTOR 470OHM+-1% 1/16W
R1168	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1170	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1171	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1176	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1178	0790073	CHIP RESISTOR 470KOHM+-5% 1/16W
R1181	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R1182	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R1183	0790059	CHIP RESISTOR 47KOHM+-5% 1/16W
R1185	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R1187	0790033	CHIP RESISTOR 470 OHM+-5% 1/16W
R1191	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1192	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1193	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1194	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1196	0103829	CHIP RESISTOR 68OHM+-5% 0.1W
R1201	0790039	CHIP RESISTOR 1.5KOHM+-5% 1/16W
R1202	0790069	CHIP RESISTOR 0.27MOHM+-5% 1/16W
R1203	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1204	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1205	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1206	0790077	CHIP RESISTOR 1MOHM+-5% 1/16W
R1207	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1208	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1209	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1210	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1211	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1212	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1213	0790053	CHIP RESISTOR 15KOHM+-5% 1/16W
R1214	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1215	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1216	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1217	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1218	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1220	0790031	CHIP RESISTOR 330 OHM+-5% 1/16W
R1221	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1222	0790046	CHIP RESISTOR 4.7KOHM+-5% 1/16W
R1224	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R1225	0790036	CHIP RESISTOR 820 OHM+-5% 1/16W
R1226	0790047	CHIP RESISTOR 5.6KOHM+-5% 1/16W
R1301	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1302	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1303	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1304	0790032	CHIP RESISTOR 390 OHM+-5% 1/16W
R1306	0103818	CHIP RESISTOR 8.2OHM+-10% 0.1W
R1307	0103813	CHIP RESISTOR 3.3 OHM+-10% 0.1W
R1308	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1309	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1310	0103818	CHIP RESISTOR 8.2OHM+-10% 0.1W
R1311	0103813	CHIP RESISTOR 3.3 OHM+-10% 0.1W
R1313	0103812	CHIP RESISTOR 2.7OHM+-10% 0.1W
R1314	0103819	CHIP RESISTOR 10 OHM+-5% 0.1W
R1315	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1316	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1317	0103812	CHIP RESISTOR 2.7OHM+-10% 0.1W
R1318	0103819	CHIP RESISTOR 10 OHM+-5% 0.1W
R1322	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R1323	0790061	CHIP RESISTOR 56KOHM+-5% 1/16W
R1330	AQ00223R	CHIP RESISTOR 12KOHM+-1% 1/16W
R1331	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1332	0790068	CHIP RESISTOR 220KOHM+-5% 1/16W
R1335	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1336	0790071	CHIP RESISTOR 330KOHM+-5% 1/16W
R1501	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1505	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R1509	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R1510	AQ00231R	CHIP RESISTOR 24KOHM+-1% 1/16W
R1512	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R1515	0790041	CHIP RESISTOR 1.8KOHM+-5% 1/16W
R1516	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1517	0790048	CHIP RESISTOR 6.8KOHM+-5% 1/16W
R1519	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W
R1520	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1521	0790049	CHIP RESISTOR 8.2KOHM+-5% 1/16W
R1522	0790052	CHIP RESISTOR 12KOHM+-5% 1/16W
R1524	0104724	CHIP RESISTOR 10KOHM+-1% 1/16W
R1525	0105192	CHIP RESISTOR 1KOHM+-0.5% 1/16W
R1526	0104723	CHIP RESISTOR 4.7OHM+-1% 1/16W
R1528	0104727	CHIP RESISTOR 15KOHM+-0.5% 1/16W
R1529	0104724	CHIP RESISTOR 10KOHM+-1% 1/16W
R1531	0105209	CHIP RESISTOR 3.3KOHM+-0.5% 1/16W
R1532	0104724	CHIP RESISTOR 10KOHM+-1% 1/16W
R1533	0105202	CHIP RESISTOR 39KOHM+-0.5% 1/16W
R1534	0105215	CHIP RESISTOR 47KOHM+-5% 1/16W
R1535	0105205	CHIP RESISTOR 510 OHM+-0.5% 1/16W
R1536	0105194	CHIP RESISTOR 2400 OHM+-0.5% 1/10W
R1582	0790073	CHIP RESISTOR 470KOHM+-5% 1/16W
R1583	0790064	CHIP RESISTOR 100KOHM+-5% 1/16W
R1584	0790051	CHIP RESISTOR 10KOHM+-5% 1/16W

SEMI-CONDUCTORS

D1002	CC10291R	DIODE 1SS353
D1103	5337351	DIODE MA132WK
D1104	5337391	DIODE D1FS4
D1105	5337352	DIODE MA132WA
D1106	5337471	DIODE KV1470
D1201	5337422	DIODE DA221
D1301	5337422	DIODE DA221
D1501	5339322	DIODE MA714
D1502	5337352	DIODE MA132WA
IC1001	UE12325	CCD IMAGE SENSOR ASSY
IC1102	CK18722U	IC HD49322BF
IC1103	CK20631U	IC HG73C012TE
IC1104	CK12061R	IC UPD16510GR
IC1106	CK21931U	IC HD6433042ST37F
IC1107	CK14172R	IC S29394AFJA
IC1108	1365592	IC RN5VT28AA-TL
IC1109	1366081	IC HD74HCT125T
IC1112	1354381	IC TC7SU04F
IC1113	1354381	IC TC7SU04F
IC1114	5305831	IC TC7S08
IC1115	5301131	IC UPD74HC00G
IC1116	1354381	IC TC7SU04F
IC1117	1351492	IC MM1029AF
IC1201	CK20621R	IC UPC5023GS-147-GJG
IC1301	1366804	IC MPC17AT85VMEL
IC1302	1366804	IC MPC17AT85VMEL
IC1501	1366251	IC TL1464IPT
IC1581	5362121	IC TC5081AP
Q1001	5328221	TRANSISTOR 2SC2620-QC
Q1103	5328192	TRANSISTOR 2SC2462LD
Q1104	1323231	TRANSISTOR 2SB1462
Q1105	1323231	TRANSISTOR 2SB1462
Q1107	1323271	TRANSISTOR DTC144EE
Q1108	1323273	TRANSISTOR DTA143EE
Q1201	5328192	TRANSISTOR 2SC2462LD
Q1202	5328974	TRANSISTOR 2SC2412K
Q1203	1323142	TRANSISTOR 2SC2411K
Q1501	1308011	TRANSISTOR MPL1

SYMBOL NO	P-NO	DESCRIPTION
Q1502	1308011	TRANSISTOR MPL1
Q1503	1308011	TRANSISTOR MPL1
Q1504	CA10271R	TRANSISTOR 2SB1424
Q1506	5326421	TRANSISTOR 2SC4081BR
Q1581	1323271	TRANSISTOR DTC144EE
ZD1101	CC10433R	DIODE(MA3030L)
		TRANSFORMER
T1501	BC10261R	TRANS
		COILS
L1101	BA10334R	COIL 10UH
L1102	BA10334R	COIL 10UH
L1103	BA10334R	COIL 10UH
L1104	BA10334R	COIL 10UH
L1105	BA10334R	COIL 10UH
L1106	BA10337R	COIL 100UH
L1109	BA10334R	COIL 10UH
L1110	BA10334R	COIL 10UH
L1111	BA10334R	COIL 10UH
L1301	BA10335R	COIL 22UH
L1302	BA10334R	COIL 10UH
L1501	BA10335R	COIL 22UH
L1502	BA10335R	COIL 22UH
L1503	BA10129R	COIL 47UH
L1504	BA10128R	COIL 22UH
L1505	BA10129R	COIL 47UH
L1506	0773004	COIL 100UH
L1507	0773004	COIL 100UH
		CRYSTALS
X1101	5778792	CRYSTAL
X1102	BL10681R	CRYSTAL
		MISCELLANEOUS
BL1101	BE10132R	FILTER,LC
BL1102	5172541	FILTER
CP1101	BE10222R	FILTER,LC
CP1102	BV10211R	FILTER
CP1103	BE10501R	FILTER
⚠F1101	5723235	FUSE 1A
PG1001	1830091	CONNECTOR
PG1002	1830115	CONNECTOR
PG1101	EA10295R	PLUG
PG1102	5666914	MINI PLUG
PG1301	EA10377R	PLUG
PG1501	1830116	CONNECTOR

SYMBOL NO	P-NO	DESCRIPTION

CHAPTER 6 SCHEMATIC,CIRCUITBOARDANDBLOCKDIAGRAMS/ MICROPROCESSORPINFUNCTIONTABLE

Cautions when using schematic diagrams

Caution for safety

The parts marked ⚠ are critical for safety. Be sure to use the specified parts to ensure safety when replacing them.

1. Values in schematic diagrams

The values, dielectric strength (power capacitance) and tolerances of the resistors (excluding variable resistors) and capacitors are indicated in the schematic diagrams using abbreviations.

[Resistors]

Item	Indication
Value	No indication ..... Ω K ..... kΩ M ..... MΩ
Tolerance	No indication ..... ±5% (All tolerances other than ± 5% are indicated in the schematic diagrams)
Power capacitance	No indication ..... 1/8W (1/16W for leadless resistors without indication) All capacitances other than the above are indicated in the schematic diagrams.

[Capacitors]

Item	Indication
Value	No indication ..... μF P ..... pF
Dielectric strength	No indication ..... 50V (All dielectric strengths other than 50V are indicated in the schematic diagrams.)

[Coils]

Item	Indication
Value	μ ..... μH m ..... mH

Cautions when using circuit board diagrams

1. Identifications of sides A/B in circuit board diagrams

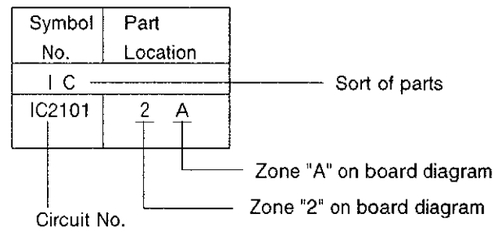
1) Board having a pattern on one side and parts on both sides.
   - Side A: Shows discrete parts, viewed from the pattern side.
   - Side B: Shows leadless parts, viewed from the pattern side.

2) Board having patterns on both sides and parts on both sides.
   - Side A: Shows parts and patterns which can be seen when the case is opened.
   - Side B: Shows parts and the pattern on the back of side A.

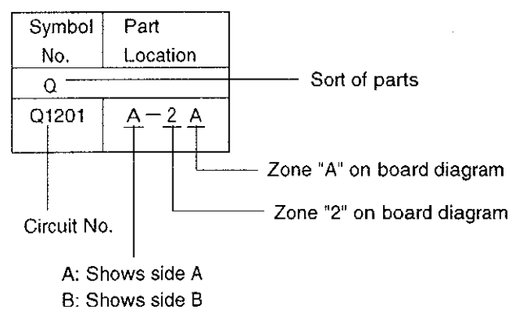
2. Table for indexing locations of parts

This table shows locations of each part on the circuit board diagrams. The locations are indicated using the guide scales on the external lines of diagrams.

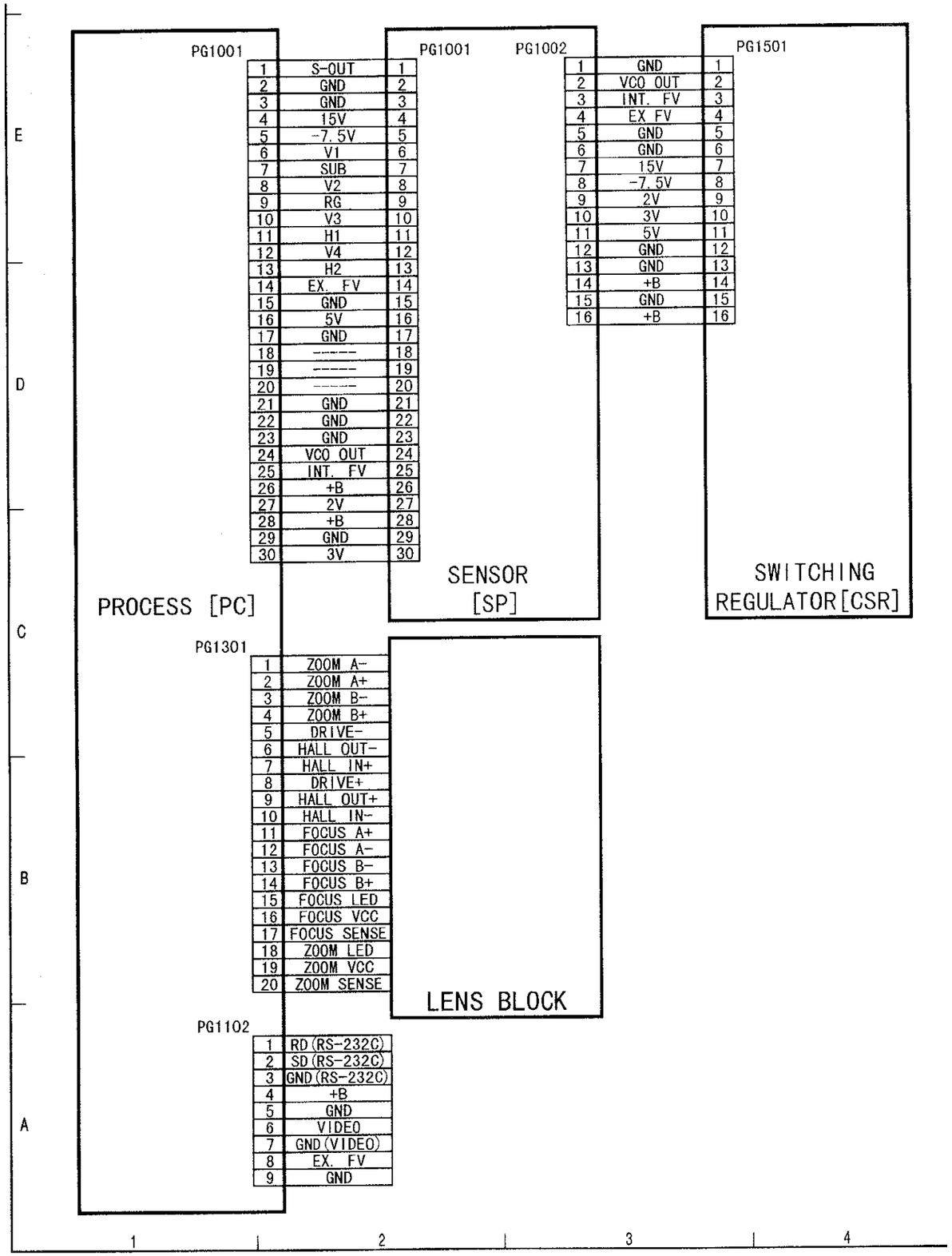
1) In case of one-layer board



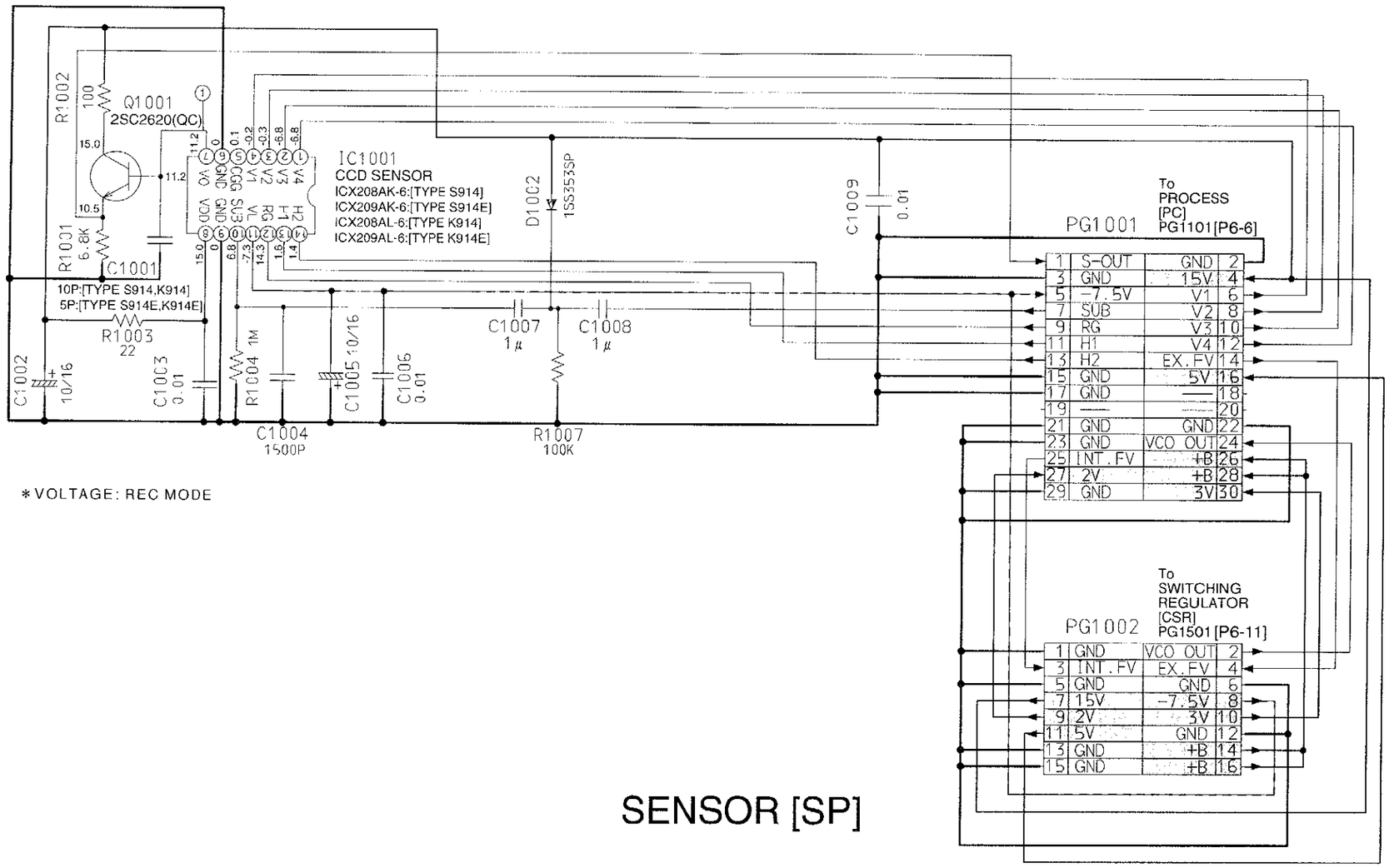
2) In case of side A/B indication board



INTERNAL WIRING DIAGRAM



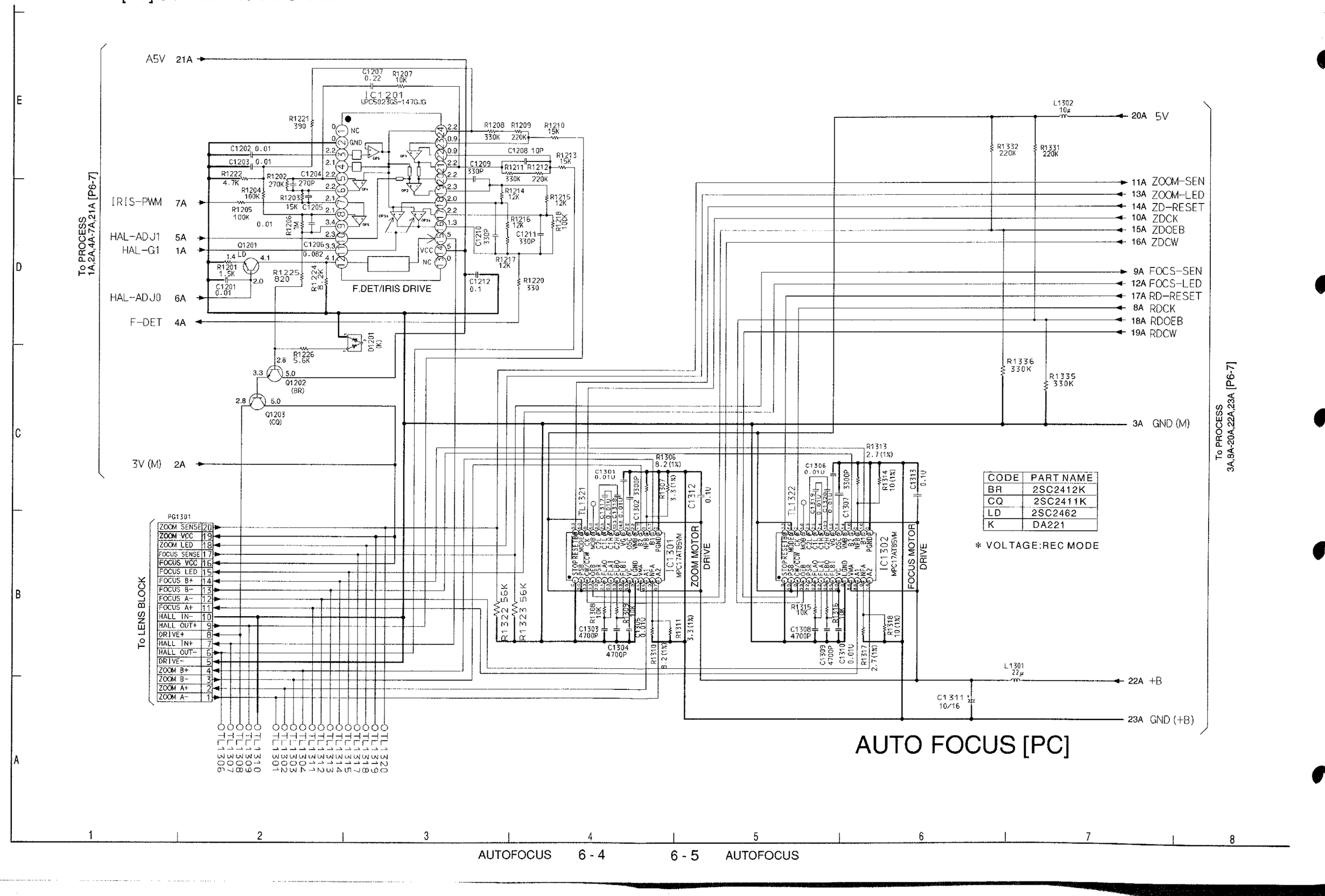
SENSOR [SP] SCHEMATIC DIAGRAM



*VOLTAGE: REC MODE

SENSOR [SP]

AUTOFOCUS [PC] SCHEMATIC DIAGRAM

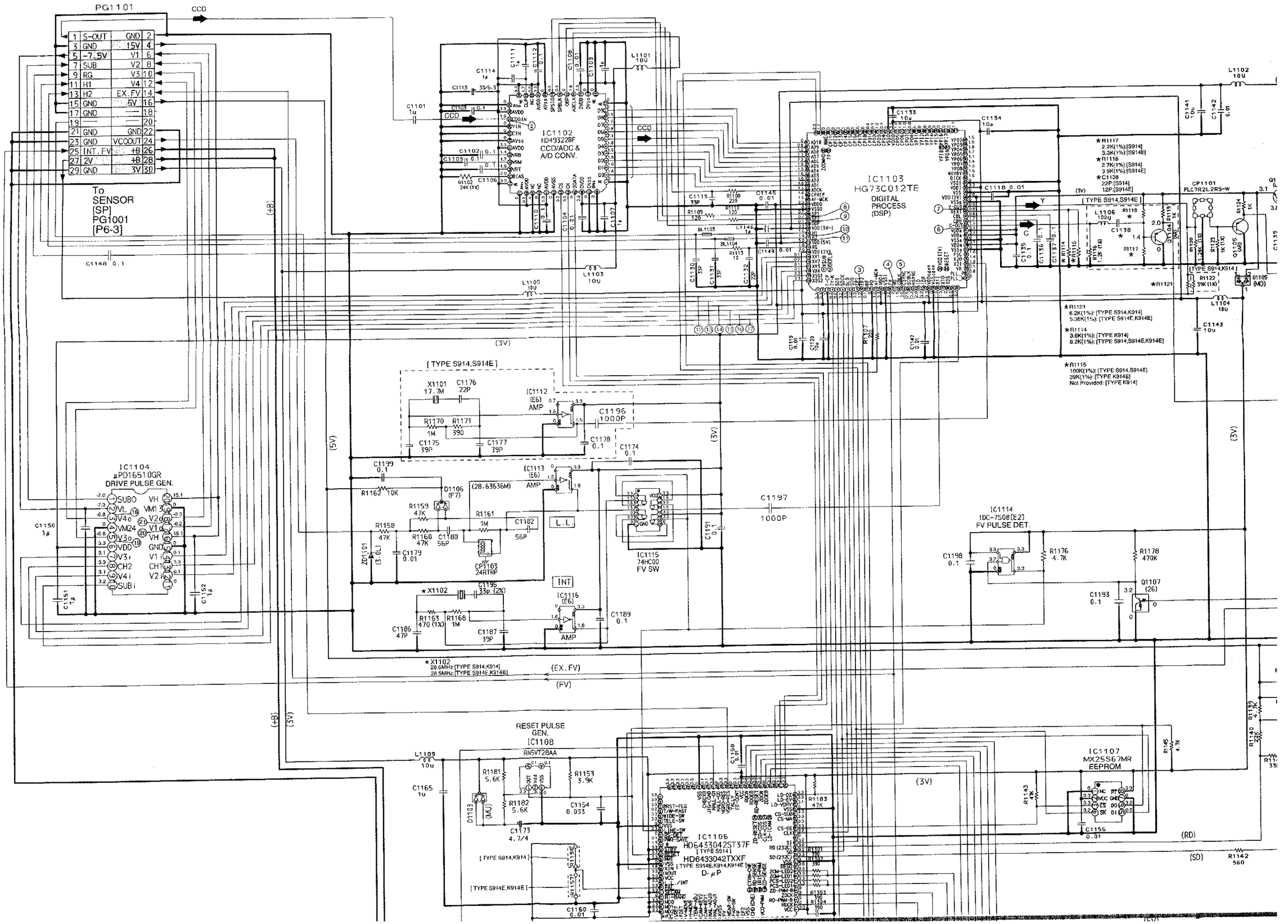


CODE	PART NAME
BR	2SC2412K
CQ	2SC2411K
LD	2SC2462
K	DA221

* VOLTAGE:REC MODE

AUTO FOCUS [PC]

PROCESS [PC] SCHEMATIC DIAGRAM



CODE	PART NAME
AR	2SB1462
E6	TC7SU04F
LD	2SC2462
13	DTA143EE
26	DTC144EE
F7	KV1470
K	DA221
MU	MA132WK
MO	MA132WA
S4	D1FS4
3.0L	MA3030L

*VOLTAGE:REC MODE

➡:VIDEO SIGNAL

PG1102	
1	RD (RS-232C)
2	SD (RS-232C)
3	GND (RS-232C)
4	+B
5	GND
6	VIDEO
7	GND (VIDEO)
8	EX.FV
9	GND

IC1102 HD49322BF CCD/ADC & A/D CONV.

IC1103 HG73C012TE DIGITAL PROCESS (DSP)

IC1105 MM1029AT VIDEO AMP

IC1106 HD6433042ST37F [TYPE S914] HD6433042TXXF [TYPE S914E,K914,K914E] D-μP

IC1107 MX25S67MR EEPROM

IC1108 RESET PULSE GEN. RN5VT28AA

IC1109 HD74HCT125T LEVEL SHIFT

IC1113 (E6) AMP

IC1114 [DC-7508(E2)] FV PULSE DET.

IC1115 74HC00 FV SW

IC1116 (E6) AMP

*R1117 2.2K(1%):[S914] 3.3K(1%):[S914E]

*R1118 2.7K(1%):[S914] 3.9K(1%):[S914E]

*C1138 22P:[S914] 12P:[S914E]

*R1121 6.2K(1%): [TYPE S914,K914] 5.36K(1%): [TYPE S914E,K914E]

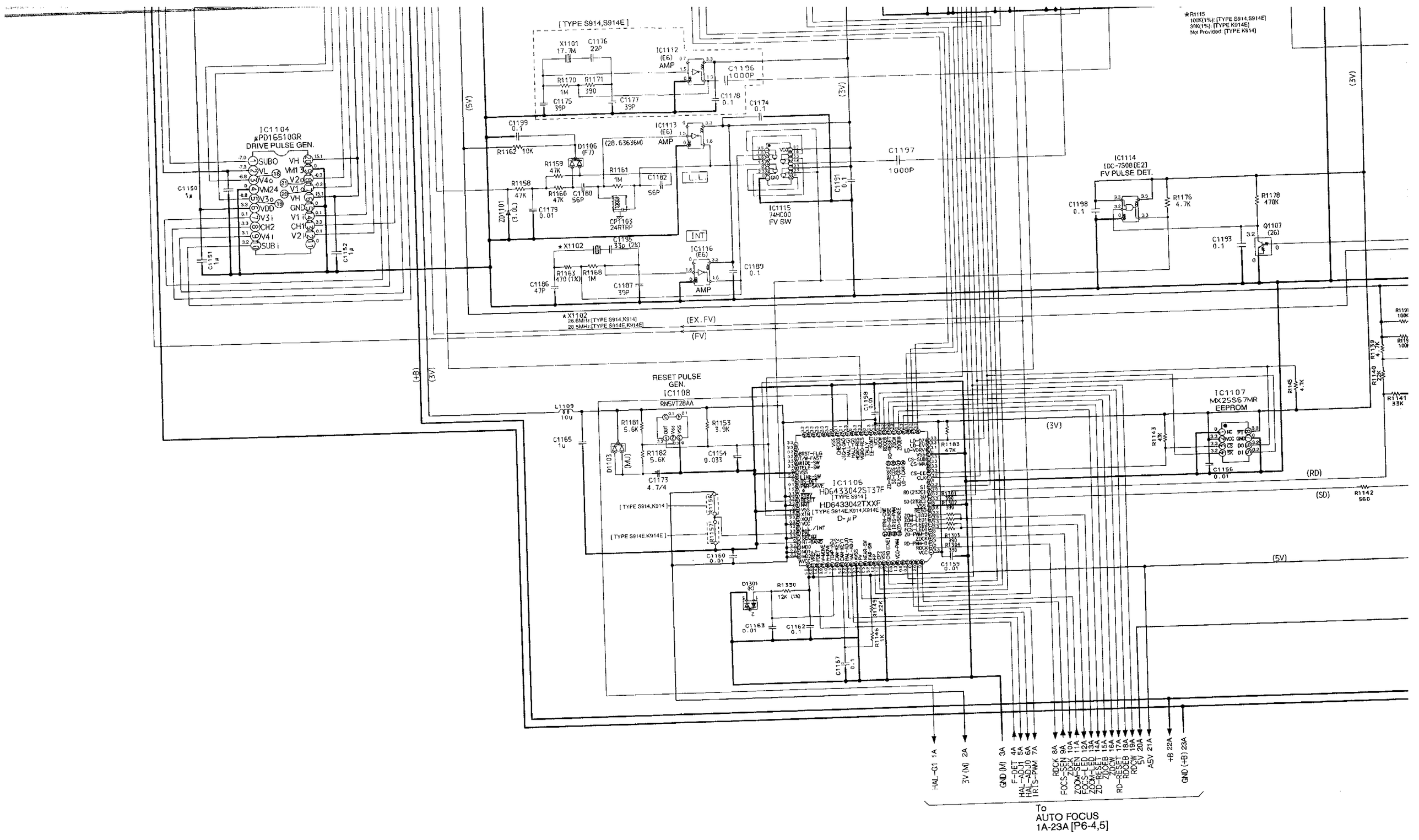
*R1114 3.6K(1%): [TYPE K914] 8.2K(1%): [TYPE S914,S914E,K914E]

*R1115 100K(1%): [TYPE S914,S914E] 39K(1%): [TYPE K914] Not Provided: [TYPE K914]

*X1102 28.6MHz:[TYPE S914,K914] 28.5MHz:[TYPE S914E,K914E]

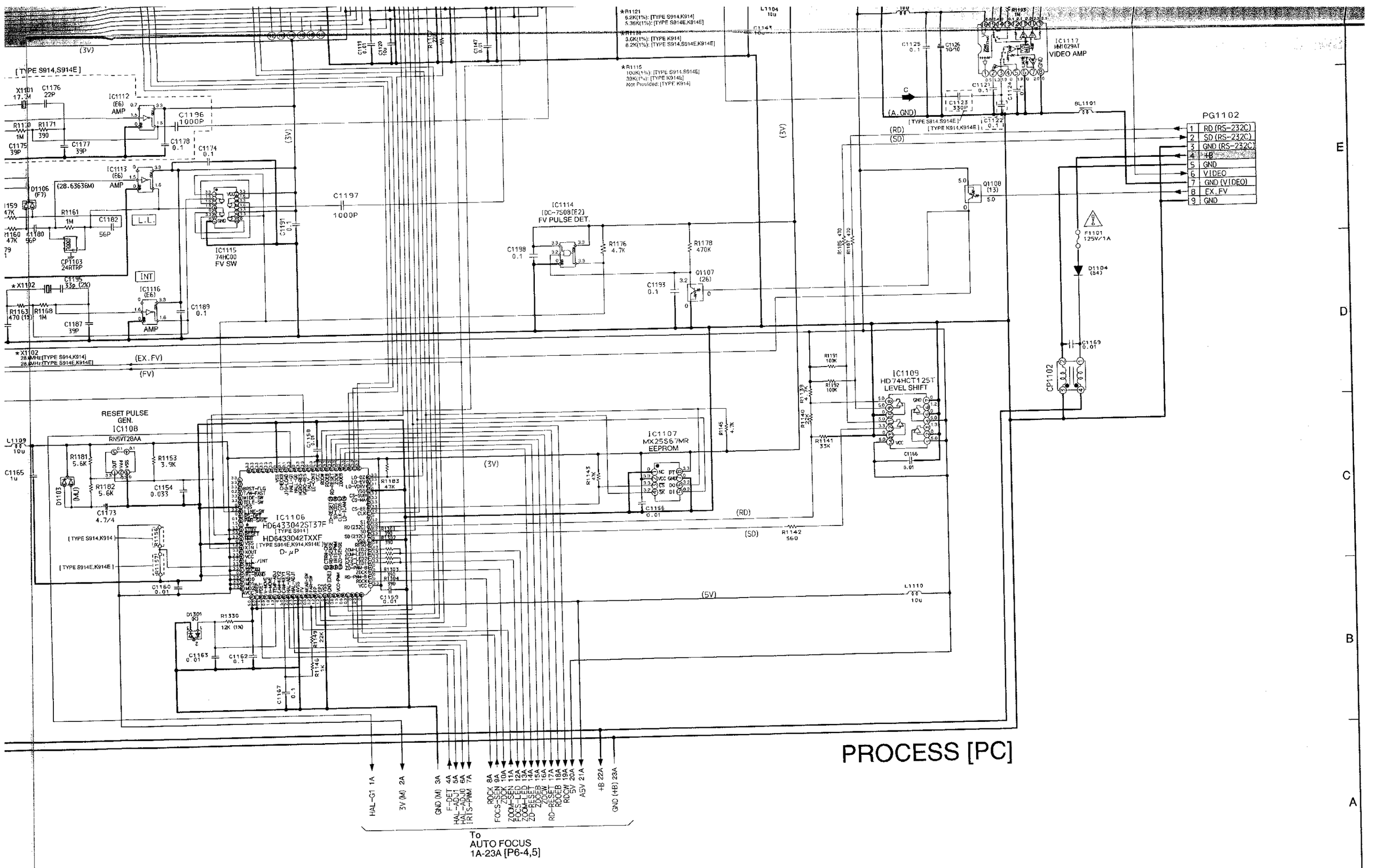
[TYPE S914,S914E] [TYPE S914,K914] [TYPE S914E,K914E] [TYPE K914,K914E]

(3V) (5V) (A.GND) (RD) (SD) (EX.FV) (FV) CCD Y C VIDEO



1 2 3 4 5 6 7 8

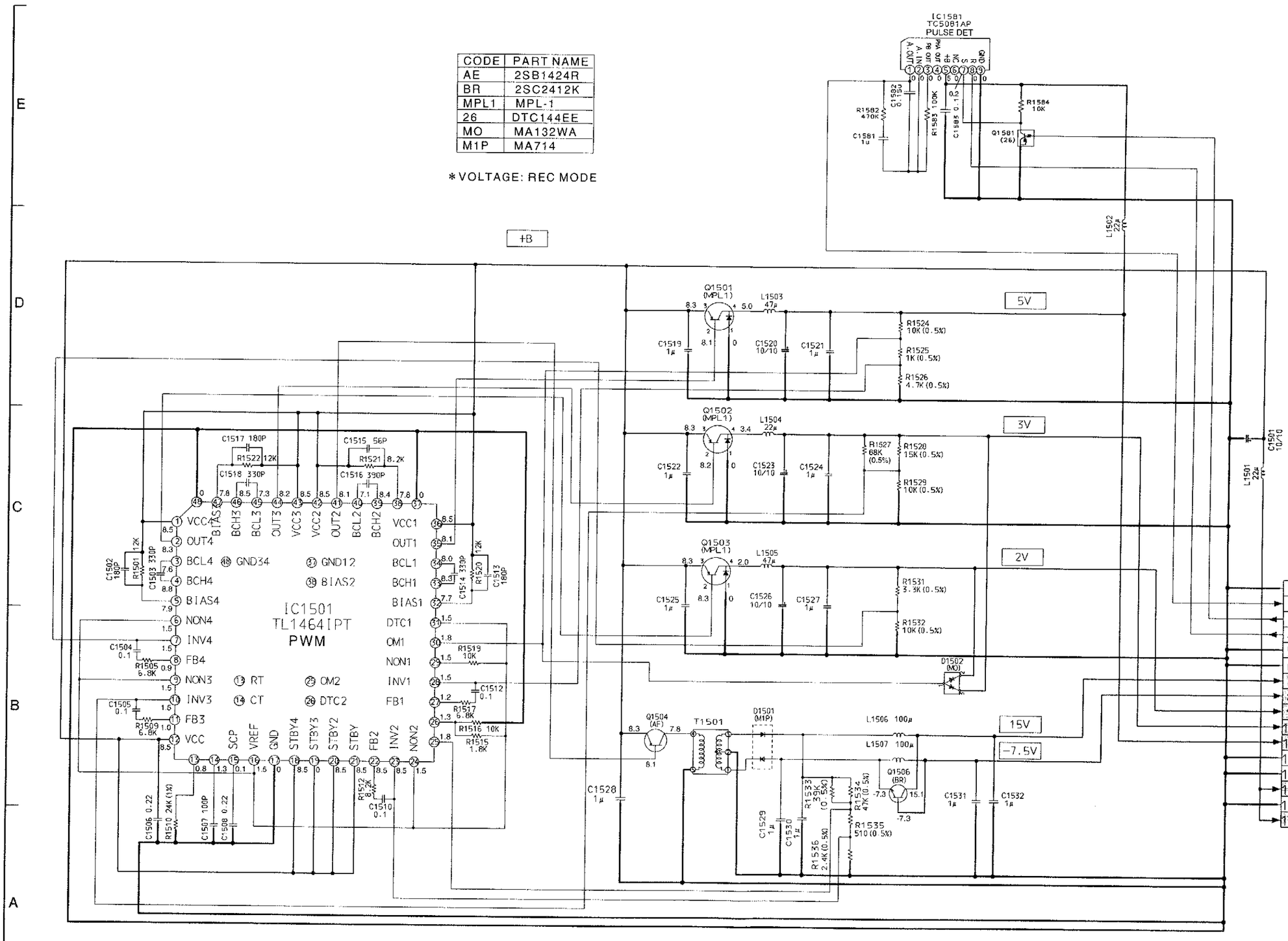
PROCESS 6 - 6 6 - 7 PROCESS


[TYPE S914,S914E]
X1101 17.7M
C1176 22P
R1170 1M
R1171 390
C1175 39P
C1177 39P
IC1112 (E6) AMP
C1196 1000P
C1178 0.1
C1174 0.1
(3V)
IC1113 (E6) AMP
(28.6363MHz)
D1106 (F7)
R1159 47K
R1160 47K
R1161 1M
C1180 56P
C1182 56P
L.L.
CP1103 24RTRP
C1191 0.1
IC1115 74HC00 FV SW
C1197 1000P
IC1114 (DC-7S08(E2) FV PULSE DET.
C1198 0.1
R1176 4.7K
R1178 470K
Q1107 (26)
C1193 0.1
INT
*X1102
C1195 33p (2X)
R1163 470 (1%)
R1158 1M
C1187 39P
IC1116 (E6) AMP
C1189 0.1
*X1102 28.6MHz:[TYPE S914,K914] 28.6MHz:[TYPE S914E,K914E]
(EX.FV)
(FV)
*R1121 6.2K(1%): [TYPE S914,K914] 5.36K(1%): [TYPE S914E,K914E]
*R1118 3.6K(1%): [TYPE K914] 6.2K(1%): [TYPE S914,S914E,K914E]
*R1115 100K(1%): [TYPE S914,S914E] 39K(1%): [TYPE K914E] Not Provided: [TYPE K914]
L1104 10u
C1147 0.01
C1125 0.1
C1126 10/10
IC1117 MM1029AT VIDEO AMP
C1121 0.1
C1123 330P
C1124 0.1
C1122 0.1
(A.GND)
[TYPE S914,S914E]
[TYPE K914,K914E]
BL1101
(RD)
(SD)
PG1102
1 RD (RS-232C)
2 SD (RS-232C)
3 GND (RS-232C)
4 +B
5 GND
6 VIDEO
7 GND (VIDEO)
8 EX.FV
9 GND
Q1108 (13)
F1101 125V/1A
D1104 (S4)
C1169 0.01
CP1102
R1191 100K
R1192 100K
R1139 33K
R1140 33K
R1141 33K
IC1109 HD74HCT125T LEVEL SHIFT
C1166 0.01
RESET PULSE GEN. IC1108
RN5VT28AA
L1109 10u
C1165 1u
R1181 5.6K
R1153 3.9K
D1103 (MU)
R1182 5.6K
C1154 0.033
C1173 4.7/4
C1158 0.01
IC1106 HD6433042ST37F [TYPE S914] HD6433042TXXF [TYPE S914E,K914,K914E] D-μP
[TYPE S914,K914]
[TYPE S914E,K914E]
R1157 0
C1160 0.01
IC1107 MX25S67MR EEPROM
R1145 4.7K
R1143 47K
C1155 0.01
R1183 47K
(3V)
(RD)
(SD)
R1142 560
R1101 560
R1102 560
R1303 560
R1304 560
C1159 0.01
(5V)
L1110 10u
D1301
R1330 12K (1%)
C1163 0.01
C1162 0.1
R1149 22K
R1146 1K
C1167 0.1
HAL-G1 1A
3V (M) 2A
GND (M) 3A
F-DET 4A
HAL-ADJ 5A
IRIS-PWM 6A
RDCK 8A
FOCS-SEN 9A
ZOCK 10A
ZOOM-SEN 11A
FOCS-LED 12A
ZOOM-LED 13A
ZO-RESET 14A
ZOOM 15A
RD-RESET 16A
RDCEB 17A
RDCW 18A
5V 19A
A5V 20A
+B 22A
GND (+B) 23A
To AUTO FOCUS 1A-23A [P6-4,5]
PROCESS [PC]
E
D
C
B
A
4
5
6
7
8
9
10
11
12
PROCESS 6 - 6
6 - 7 PROCESS
PROCESS 6 - 8

SWITCHING REGULATOR [CSR] SCHEMATIC DIAGRAM

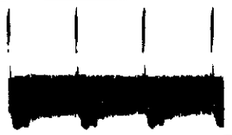
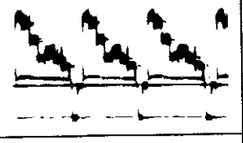
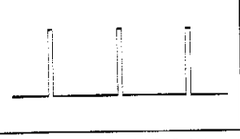
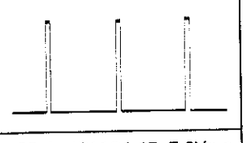
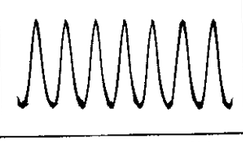
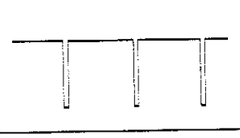
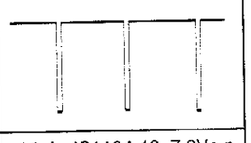
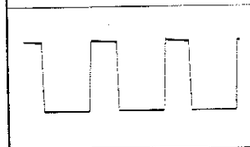
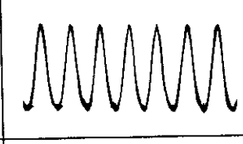
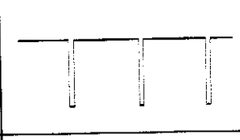
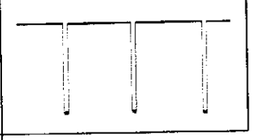
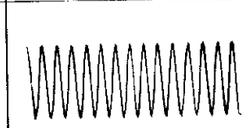
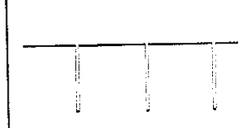
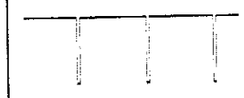
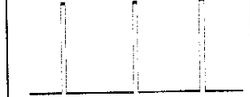
CODE	PART NAME
AE	2SB1424R
BR	2SC2412K
MPL1	MPL-1
26	DTC144EE
MO	MA132WA
M1P	MA714

*VOLTAGE: REC MODE



SWITCHING REGULATOR [CSR]

WAVEFORMS

1-A IC1001-7 1.1Vp-p 0.2V/20.0µsec.cm COLOR CHART	7-A IC1103-46 1.0Vp-p 0.2V/20.0µsec.cm COLOR CHART	13-A IC1103-116 3.1Vp-p 1V/20.0µsec.cm COLOR CHART	19-A IC1104-5 7.3Vp-p 2V/20.0µsec.cm COLOR CHART
			
2-A IC1102-27 1.1Vp-p 0.2V/20.0µsec.cm COLOR CHART	8-A IC1103-106 4.2Vp-p 1V/50.0nsec.cm COLOR CHART	14-A IC1103-117 3.1Vp-p 1V/20.0µsec.cm COLOR CHART	20-A IC1104-17 7.3Vp-p 2V/20.0µsec.cm COLOR CHART
			
3-A IC1103-10 3.0Vp-p 1V/5.0msec.cm COLOR CHART	9-A IC1103-107 4.2Vp-p 1V/50.0nsec.cm COLOR CHART	15-A IC1103-118 3.1Vp-p 1V/20.0µsec.cm COLOR CHART	21-A IC1104-18 7.3Vp-p 2V/20.0µsec.cm COLOR CHART
			
4-A IC1103-16 3.0Vp-p 1V/5.0msec.cm COLOR CHART	10-A IC1103-110 7.0Vp-p 2V/100nsec.cm COLOR CHART	16-A IC1103-119 3.1Vp-p 1V/5.0msec.cm COLOR CHART	
			
5-A IC1103-19 3.0Vp-p 1V/20.0µsec.cm COLOR CHART	11-A IC1103-111 7.0Vp-p 2V/100nsec.cm COLOR CHART	17-A IC1103-120 3.1Vp-p 1V/5.0msec.cm COLOR CHART	
			
6-A IC1103-42 550mVp-p 0.2V/20.0µsec.cm COLOR CHART	12-A IC1103-115 3.1Vp-p 1V/20.0µsec.cm COLOR CHART	18-A IC1104-3 7.3Vp-p 2V/20.0µsec.cm COLOR CHART	
			

IDENTIFICATION OF PARTS LOCATION

SP [SENSOR]

Symbol No.	Parts Location
C	
C1001	B-2B
C1002	A-3B
C1003	B-2B
C1004	B-2A
C1005	A-1C
C1006	B-2A
C1007	B-2A
C1008	B-2A
C1009	B-3B
D	
D1002	B-2A
IC	
IC1001	B-2B
PG	
PG1001	A-3A
PG1002	B-3C
Q	
Q1001	B-2B
R	
R1001	B-2B
R1002	B-2B
R1003	B-2B
R1004	B-2A
R1007	B-2A

CSR [SWITCHING REGULATOR]

Symbol No.	Parts Location
C	
C1501	A-3C
C1502	B-2B
C1503	B-2B
C1504	B-2A
C1505	B-3A
C1506	B-2B
C1507	B-3B
C1508	B-3B
C1510	B-3B
C1512	B-2C
C1513	B-2C
C1514	B-2B
C1515	B-2B
C1516	B-2B
C1517	B-2B
C1518	B-2B
C1519	B-2C
C1520	A-2C
C1521	B-2C
C1522	B-1A
C1523	A-1A
C1524	B-1A
C1525	B-3A
C1526	A-2A
C1527	B-3A
C1528	B-1C
C1529	B-1C
C1530	B-1C
C1531	B-1C
C1532	B-1C
C1581	B-3A
C1582	B-3A
C1583	B-3B
D	
D1501	B-1C
D1502	B-3C
IC	
IC1501	B-2B
IC1581	B-3B
L	
L1501	B-3C
L1502	B-3A
L1503	A-2C
L1504	A-1A
L1505	A-2A
L1506	B-1C
L1507	B-1C
PG	
PG1501	A-3C
Q	
Q1501	B-2C
Q1502	B-1A
Q1503	B-2A
Q1504	B-1B
Q1506	B-1C
Q1581	B-3B
R	

Symbol No.	Parts Location
R1501	B-2B
R1505	B-2A
R1509	B-3A
R1510	B-3B
R1512	B-3B
R1515	B-2B
R1516	B-3B
R1517	B-2C
R1519	B-2C
R1520	B-2C
R1521	B-2B
R1522	B-2B
R1524	B-2C
R1525	B-2C
R1526	B-2C
R1528	B-1A
R1529	B-1B
R1531	B-3A
R1532	B-3A
R1533	B-1C
R1534	B-1C
R1535	B-1C
R1536	B-1C
R1582	B-3A
R1583	B-3A
R1584	B-3B
T	
T1501	A-1C

IDENTIFICATION OF PARTS LOCATION

PC [PROCESS]

Symbol No.	Parts Location
BL	
BL1101	A-1B
BL1102	A-2A
BL1103	A-2C
BL1104	A-2C
C	
C1101	B-1C
C1102	B-1C
C1103	B-1C
C1104	B-2B
C1105	B-1B
C1106	B-1B
C1107	B-2B
C1108	B-1C
C1109	B-1C
C1110	B-1B
C1111	B-1C
C1112	B-1C
C1113	A-3C
C1114	B-1C
C1115	B-2C
C1118	B-3B
C1119	B-2B
C1120	A-2C
C1121	A-3B
C1122	A-3B
C1123	A-3B
C1124	A-3A
C1125	A-3B
C1126	A-2A
C1127	A-2B
C1128	A-2A
C1129	A-2A
C1130	A-2C
C1131	A-2C
C1132	B-2B
C1133	A-3C
C1134	A-3C
C1135	B-3B
C1136	B-3B
C1137	B-3B
C1138	A-3B
C1139	A-4B
C1141	A-1C
C1142	B-1C
C1143	A-1B
C1145	A-2C
C1146	A-2C
C1147	B-3B
C1148	B-2B
C1149	A-2C
C1150	A-2C
C1151	A-3C
C1152	A-2B
C1154	B-5B
C1156	A-5C
C1158	B-4B
C1159	B-4C
C1160	B-5B
C1162	B-5C
C1163	B-5C
C1165	A-1B
C1166	A-4C
C1167	B-4C
C1169	A-1A
C1173	B-5B
C1174	B-3A
C1175	A-5C
C1176	A-5B
C1177	A-5B
C1178	A-5C
C1179	B-3B
C1180	B-3B
C1182	B-3B
C1186	A-5B
C1187	A-5B
C1189	B-4A
C1191	B-3B
C1193	A-2B
C1195	A-4B
C1196	A-5B
C1197	B-3B
C1198	A-1B
C1199	B-3B
C1201	B-4A
C1202	A-4A
C1203	B-4A
C1204	A-4A
C1205	A-4A
C1206	B-4A
C1207	A-3A
C1208	A-3A
C1209	A-4A
C1210	A-4A
C1211	B-4A
C1212	A-4A
C1301	A-5B
C1302	A-5B
C1303	A-5A
C1304	A-4A
C1305	A-5A
C1306	B-5B
C1307	B-5B
C1308	B-4A
C1309	B-5A
C1310	B-5A
C1311	A-3A
C1312	A-5B
C1313	B-5A
C1317	A-5B
C1318	A-5B
C1319	B-4A
C1320	B-5B
CP	
CP1101	A-3B
CP1102	A-1A
CP1103	A-3A
D	
D1103	B-5B
D1104	B-1A
D1105	A-3C
D1106	B-3B
D1201	B-3A
D1301	B-5C
F	
F1101	B-2A
IC	
IC1102	B-1C
IC1103	B-3C
IC1104	A-2C
IC1106	B-4B
IC1107	A-4C
IC1108	B-5B
IC1109	A-4C
IC1112	A-5C
IC1113	B-3B
IC1114	A-2B
IC1115	A-3B
IC1116	B-4B
IC1117	A-3B
IC1201	A-4A
IC1301	A-5A
IC1302	B-4A
L	
L1101	B-1C
L1102	B-1C
L1103	B-1C
L1104	B-1B
L1105	A-2C
L1106	A-3B
L1109	B-1B
L1110	B-1C
L1111	A-1B
L1301	A-1A
L1302	B-5B
PG	
PG1101	A-1C
PG1102	B-1A
PG1301	B-3A
Q	
Q1103	A-4B
Q1104	A-4B
Q1105	A-3B
Q1107	A-1B
Q1108	A-1B
Q1201	B-3A
Q1202	B-4A
Q1203	B-3A
R	
R1102	B-1B
R1107	B-2B
R1108	B-2C
R1109	B-2B
R1110	B-2B
R1113	B-2B
R1114	B-3B
R1115	B-3B
R1116	A-3B
R1117	A-4B
R1118	A-3B
R1119	A-4B
R1120	A-3B
R1121	A-3B
R1122	A-3B
R1123	A-3B
R1124	A-3B
R1125	A-4B
R1126	A-4C
R1139	A-4C
R1140	A-3C
R1141	A-3C
R1142	A-4C
R1143	A-4C
R1145	A-4C
R1146	B-4C
R1149	B-4C
R1153	B-5B
R1156	B-5C
R1157	B-5C
R1158	B-3B
R1159	B-3B
R1160	B-3B
R1161	B-3B
R1162	B-3B
R1163	A-5B
R1168	A-4B
R1169	A-5B
R1170	A-5B
R1171	A-5B
R1176	A-2B
R1178	A-2B
R1181	B-5B
R1182	B-5B
R1183	B-4B
R1185	A-3C
R1187	A-3C
R1191	A-3C
R1192	A-4C
R1193	A-2B
R1194	A-2B
R1196	A-2A
R1201	B-3A
R1202	A-4B
R1203	A-4B
R1204	B-4A
R1205	A-4B
R1206	B-4A
R1207	A-3A
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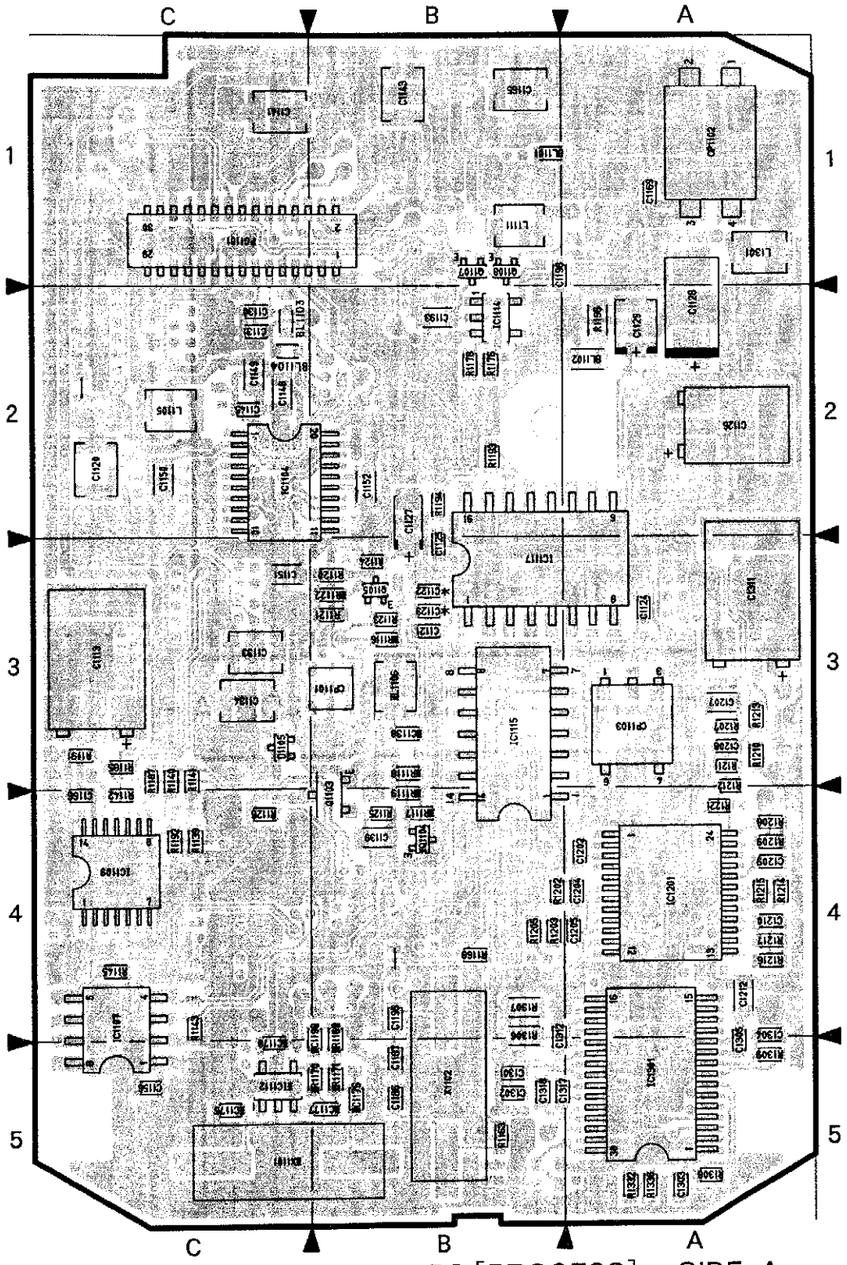
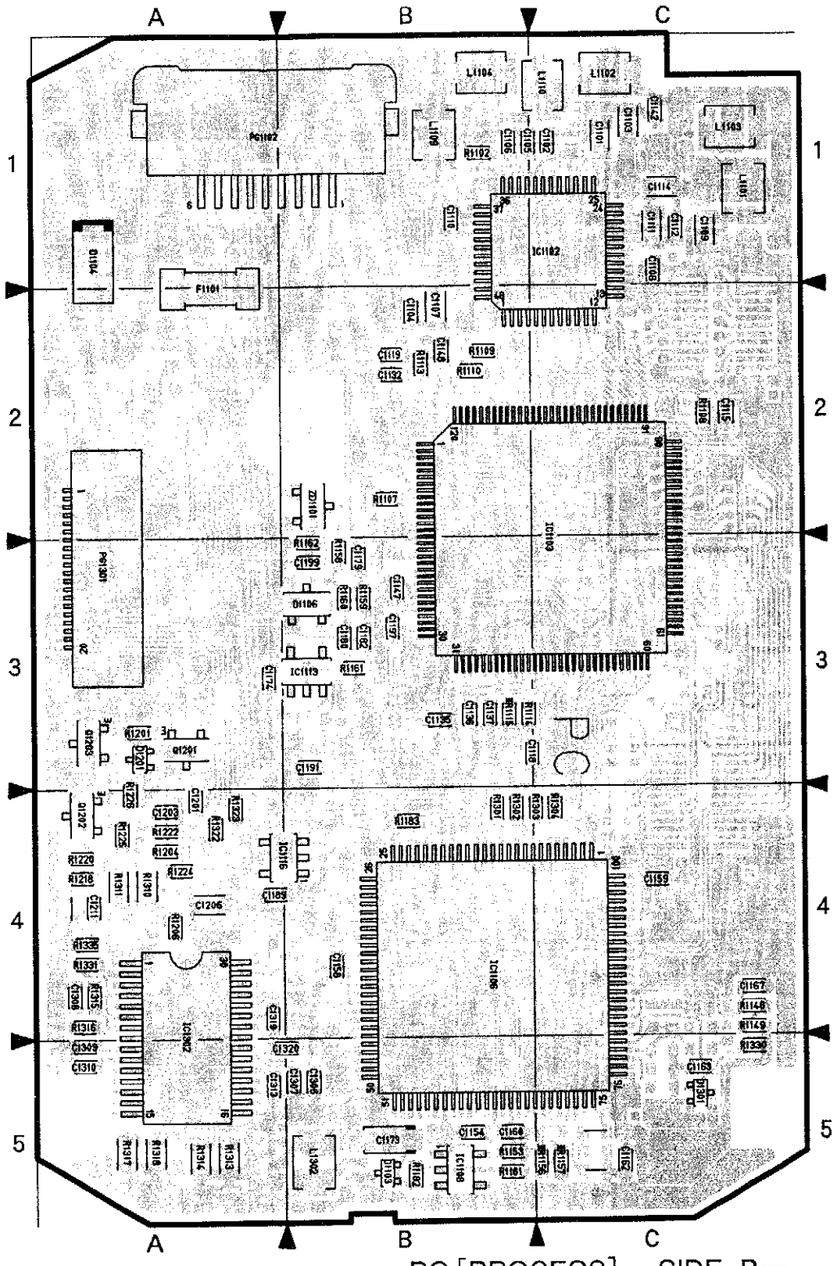
R1209	A-4A
R1210	A-3A
R1211	A-3A
R1212	A-4A
R1213	A-3A
R1214	A-4A
R1215	A-4A
R1216	A-4A
R1217	A-4A
R1218	B-4A
R1220	B-4A
R1221	A-4A
R1222	B-4A
R1224	B-4A
R1225	B-4A
R1226	B-4A
R1301	B-4B
R1302	B-4B
R1303	B-4C
R1304	B-4C
R1306	A-4B
R1307	A-4B
R1308	A-5A
R1309	A-5A
R1310	B-4A
R1311	B-4A
R1313	B-5A
R1314	B-5A
R1315	B-4A
R1316	B-4A
R1317	B-5A
R1318	B-5A
R1322	B-4A
R1323	B-4A
R1330	B-5C
R1331	B-4A
R1332	A-5A
R1335	B-4A
R1336	A-5A
X	
X1101	A-5C
X1102	A-5B
ZD	
ZD1101	B-2B

PC [PROCESS] CIRCUIT BOARD



PC [PROCESS] —SIDE A—



PC [PROCESS] —SIDE B—
[PATTERN No. JA1521-4]

DIFFERNCE TABLE

NOTE: This table listes the different components marked with asterisks (✱) in the circuit board diagrams.

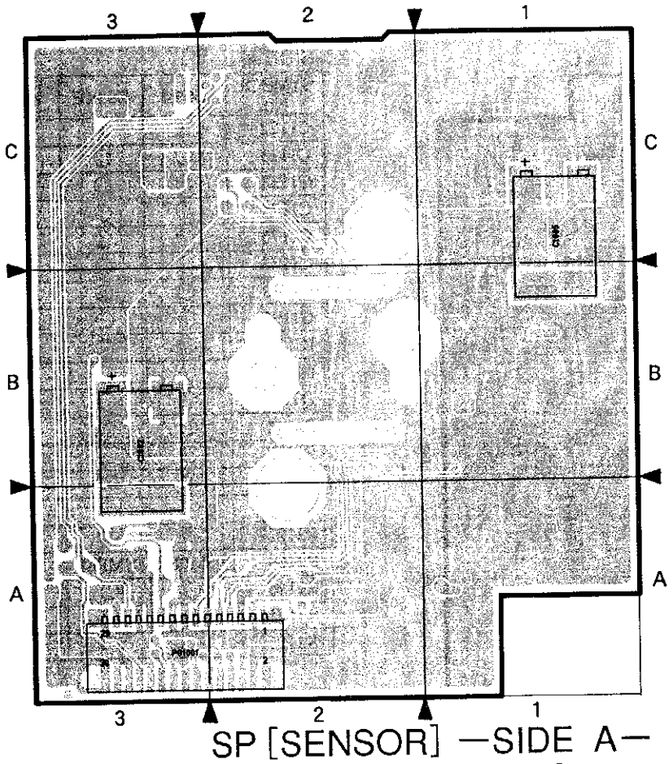
-SIDE A-

SYMBOL No.	S914	S914E	K914	K914E
C1122	×	×	○	○
C1123	○	○	×	×
C1138	○	○	×	×
C1175	○	○	×	×
C1176	○	○	×	×
C1177	○	○	×	×
C1178	○	○	×	×
C1196	○	○	×	×
IC1112	○	○	×	×
L1106	○	○	×	×
Q1104	○	○	×	×
R1116	○	○	×	×
R1117	○	○	×	×
R1118	○	○	×	×
R1119	○	○	×	×
R1122	○	×	○	×
R1169	JUMPER	JUMPER	×	×
R1170	○	○	×	×
R1171	○	○	×	×
X1101	○	○	×	×

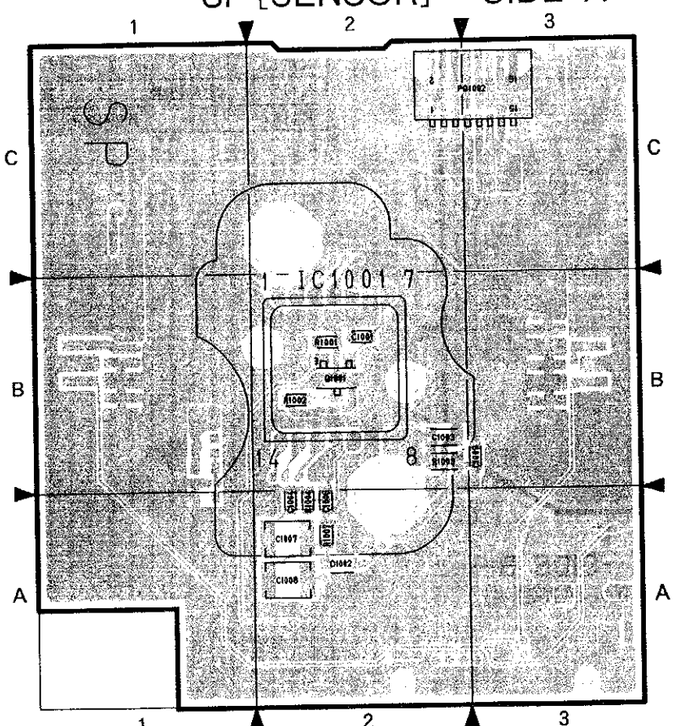
-SIDE B-

SYMBOL No.	S914	S914E	K914	K914E
R1115	○	○	×	○
R1156	JUMPER	×	JUMPER	×
R1157	×	JUMPER	×	JUMPER

SP [SENSOR] CIRCUIT BOARD



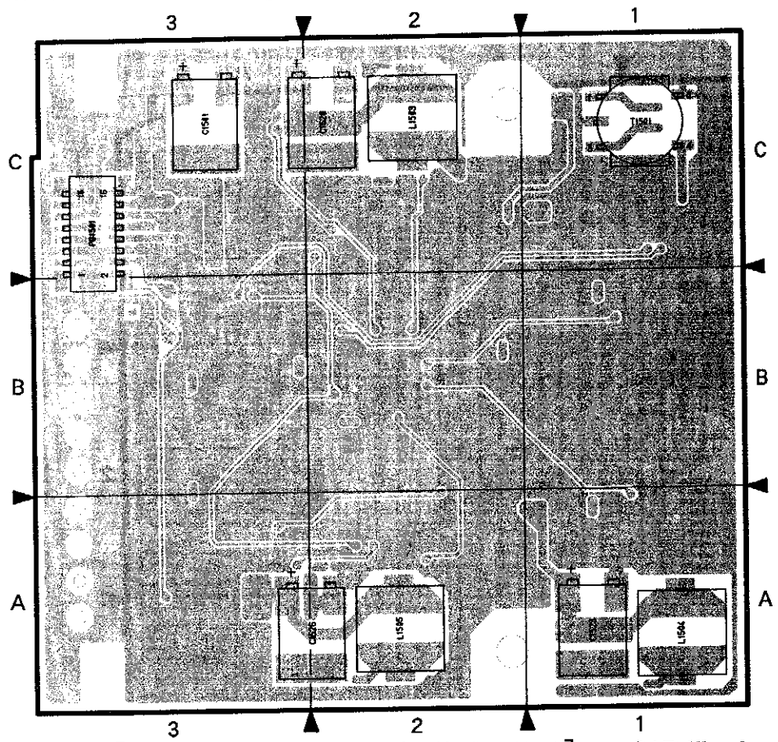
SP [SENSOR] —SIDE A—



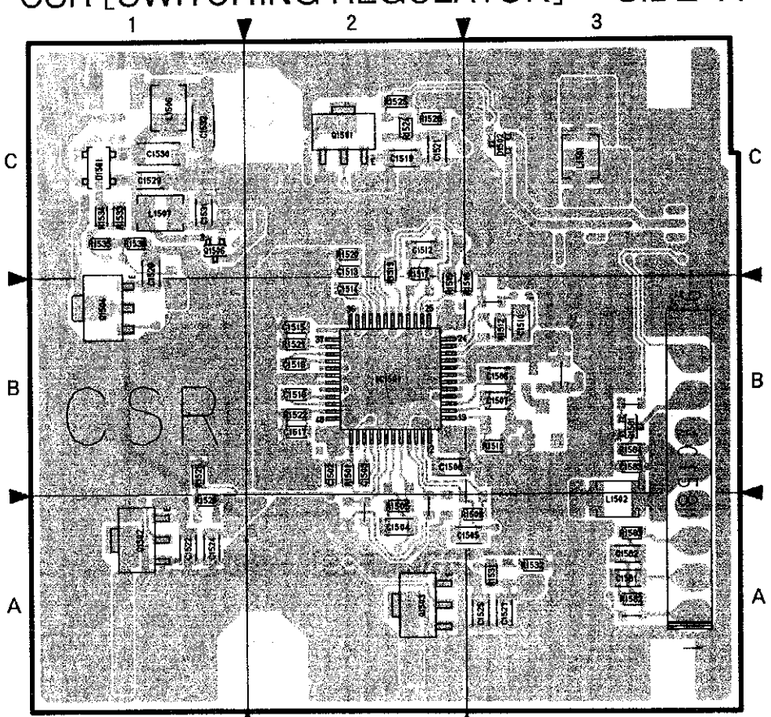
SP [SENSOR] —SIDE B—

[PATTERN No. JA1521-4]

CSR [SWITCHING REGULATOR] CIRCUIT BOARD



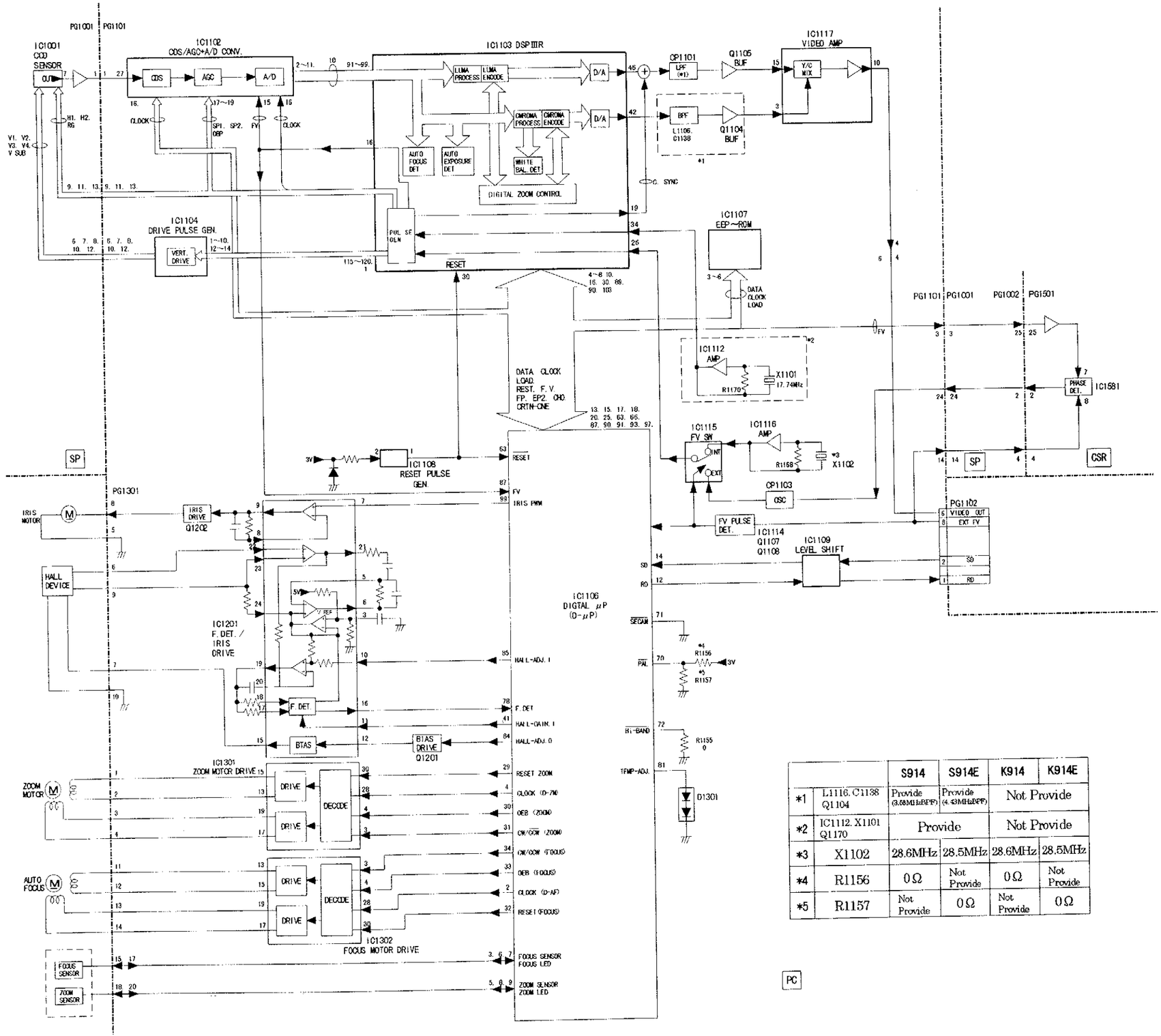
CSR [SWITCHING REGULATOR] —SIDE A—



CSR [SWITCHING REGULATOR] —SIDE B—

[PATTERN No. JA1521-4]

BLOCK DIAGRAM



		S914	S914E	K914	K914E
*1	L1116, C1138 Q1104	Provide (3.68MHzBPF)	Provide (4.43MHzBPF)	Not Provide	
*2	IC1112, X1101 Q1170	Provide		Not Provide	
*3	X1102	28.6MHz	28.5MHz	28.6MHz	28.5MHz
*4	R1156	0Ω	Not Provide	0Ω	Not Provide
*5	R1157	Not Provide	0Ω	Not Provide	0Ω

MICROPROCESSOR PIN FUNCTION TABLES

1. DIGITAL MICROPROCESSOR (IC1106: D-μP)

Pin No.	I/O	Active Level	Abbreviation	Function
1	-----	-----	Vcc	3.2V power input.
2	O	(Pulse)	RD-CK	Outputs focus motor drive signal to IC1302 (FOCUS MOTOR DRIVE).
3	-----	-----	-----	Not used. Open.
4	O	(Pulse)	ZD-CK	Outputs zoom motor drive signal to IC1301 (ZOOM MOTOR DRIVE).
5	-----	-----	-----	Not used. Open.
6	O	(Pulse)	FOCUS LED1	Output pulses to drive the LEDs in the focus reset switches (FOCUS RESET SW).
7	O	(Pulse)	FOCUS LED2	
8	O	(Pulse)	ZOOM LED1	Output pulses to drive the LEDs in the zoom reset switches (ZOOM RESET SW).
9	O	(Pulse)	ZOOM LED2	
10	-----	-----	RESET[Lo]	Not used. Open.
11	-----	-----	Vss	Ground.
12	O	(Pulse)	TX DATA(SD)	Used for initial settings and adjustment. For data communications with personal computer.
14	I	(Pulse)	RX DATA(RD)	
13	O	(Pulse)	DATA(D-DSP/ ROM)	For data communications with IC1103 (DSP) and IC1107 (EEP-ROM).
15	I	(Pulse)	DATA(DSP/ ROM-D)	
17	O	(Pulse)	CLOCK(D-DSP/ ROM)	
16	-----	-----	-----	Not used. Open.
18	O	Lo	LOAD[Lo] (D-ROM)	Activates data communications with IC1107 (EEP-ROM).
19	-----	-----	-----	Not used. Open.
20	-----	-----	-----	Not used. Open.
21	-----	-----	-----	
22	-----	-----	Vss	Ground.
23	-----	-----	-----	Not used. Open.
24	-----	-----	-----	
25	O	Lo	LOAD[Lo] (D-DSP)	Activates data communications with IC1103 (DSP).
26	O	(Pulse)	CS(D-CDS)	Activates data communications with IC1101 (CDS/AGC & A/D CONV.).
27	O	(Pulse)	CLOCK(D-CDS)	Transfer data to IC1101 (CDS/AGC & A/D CONV.).
28	O	(Pulse)	DATA(D-CDS)	
29	O	Hi	ZD-RESET	Resets IC1301 (ZOOM MOTOR DRIVE).
30	O	(Pulse)	OEB(ZOOM)	Activates data communications with IC1301 (ZOOM MOTOR DRIVE).
31	O	Hi/Lo	ZD CW	Issues a command which determines with IC1301 (ZOOM MOTOR DRIVE).
32	O	Hi	RD-RESET	Resets IC1302 (FOCUS MOTOR DRIVE).
33	O	(Pulse)	OEB(FOCUS)	Activates data communications with IC1302 (FOCUS MOTOR DRIVE).
34	O	Hi/Lo	RD CW	Issues a command which determines with IC1302 (FOCUS MOTOR DRIVE).
35	-----	-----	Vcc	3.2V power input.
36	-----	-----	-----	Not used. Open.
37	-----	-----	-----	
38	-----	-----	-----	
39	-----	-----	-----	
40	-----	-----	HALL GAIN 0	
41	O	Hi	HALL GAIN 1	Control the amplification (gain of hall device) in IC1201 (F.DET/IRIS DRIVE).
42	-----	-----	-----	Not used. Open.
43	-----	-----	-----	
44	-----	-----	Vss	Ground.
45	-----	-----	-----	Not used. Open.
46	-----	-----	-----	
47	-----	-----	-----	
48	-----	-----	-----	
49	-----	-----	-----	
50	-----	-----	-----	

Pin No.	I/O	Active Level	Abbreviation	Function
51	-----	-----	-----	Not used. Open.
52	-----	-----	-----	
53	-----	-----	-----	
54	-----	-----	T/W FAST	
55	-----	-----	WIDE SW[Lo]	
56	-----	-----	TELE SW[Lo]	
57	-----	-----	Vss	Ground.
58	I	(Pulse)	LINE-SW	External FV pulse input.
59	-----	-----	-----	Not used. Open.
60	-----	-----	POWER SAVE [Lo]	
61	-----	-----	-----	
62	I	Hi	STAND-BY[Lo]	Not used. Connected to 3.2V power supply.
63	I	Hi/Lo	RESET	Reset signal input from IC1108 (RESET PULSE GEN).
64	I	Hi	MN1[Lo]	Not used. Connected to 3.2V power supply.
65	-----	-----	Vss	Ground.
66	I	(Pulse)	AF CLOCK	Clock pulse input from IC1103 (DSP).
67	-----	-----	-----	Not used. Open.
68	-----	-----	Vcc	3.2V power input.
69	-----	-----	-----	Not used. Open.
70	I	Hi/Lo	PAL[Lo]	NTSC : Not used. Connected to 3.2V power supply. PAL : Used. Connected ground.
71	I	Lo	SECAM[Lo]	Not used. Connected to 3.2V power supply.
72	I	Lo	Hi-BAND[Lo]	Used. Connected to ground.
73	I	Hi	MO0	Not used. Connected to 3.2V power supply.
74	I	Hi	MO1	
75	I	Hi	MO2	
76	-----	-----	AVcc	5V power input (for analog circuits in microprocessor).
77	-----	-----	V.REF	A/D reference voltage input (connected to 5V power supply).
78	I	0V-5V	F.DET	F-value detection input. Receives the F.DET voltage detected by IC1201 (F.DET) and compares this with the reference voltage input via pin 77 to detect the F-value.
79	-----	-----	V.MOVE	Not used. Open.
80	-----	-----	H.MOVE	
81	I	0V-5V	TEMP-ADJ.	Temperature change detection input. Detects variations in the forward voltage at the connected diode to correct the back-focus.
82	-----	-----	CAM KEY2	Not used. Open.
83	-----	-----	CAM KEY1	Not used.
84	O	0V-5V	HALL-ADJ.0	Drives Q1201 (HALL BIAS) to control the bias voltage of the Hall devices.
85	O	0V-5V	HALL-ADJ.1	Controls the offset voltage of IC1201 (F. DET/IRIS DRIVE).
86	-----	-----	AVss	Ground.
87	I	(Pulse)	FV	Receives the vertical sync pulses that detect the iris detection area, from IC1103 (DSP).
88	-----	-----	NEAR-SW[Lo]	Not used. Open.
89	-----	-----	FAR-SW[Lo]	
90	I	(Pulse)	FP	Field discrimination pulse input.
91	I	(Pulse)	EP2	Receives pulses which discriminate the iris detection area.
92	-----	-----	Vss	Ground.
93	I	(Pulse)	CHD	Horizontal sync input.
94	-----	-----	-----	Not used. Open.
95	-----	-----	-----	
96	-----	-----	-----	
97	O	(Pulse)	CRTN-CNE	Supplies pulses to IC1103 (DSP) to control the wipe fade operation.
98	I	(Pulse)	FOCUS SENSOR	Focus motor position detection input.
99	O	(Pulse)	IRIS PWM	Iris motor drive output.
100	I	(Pulse)	ZOOM SENSOR	Zoom motor position detection input.

HITACHI

VK-S914/S914E/K914/K914E

VK-S914/S914E/K914/K914E

VK-S914/S914E TK No.8802E Image & Information Media Systems Division, Tokai
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